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Elements

OF

BOTANY.

ELEMENTS

OF

BOTANY.

PART I.

CLASSIFICATION.

BY

R. J. THORNTON, M. D.

MEMBER OF THE UNIVERSITY OF CAMBRIDGE, AND OF THE ROYAL
LONDON COLLEGE OF PHYSICIANS, &c. &c. &c.

VOL. I.

London:
Printed for the Author, as Prizes in the Royal Botanical Lottery, by J. WHITING, Finsbury Place.
1812.

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5 OCT 1956
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DEDICATION.

TO THE

REV. THOMAS MARTYN, M.A. F.R.S.

REGIUS PROFESSOR OF BOTANY IN THE UNIVERSITY OF
CAMBRIDGE, AND VICE-PRESIDENT OF THE
LINNÆAN SOCIETY, &c. &c.

MOST WORTHY PROFESSOR!

It gives me the highest satisfaction to have lived at a period when Botany has made such great progress under your auspices; when the world has been favoured with the best elementary works from your pen. I need not mention here, "*Letters on Botany, addressed to Ladies,*" and your "*Language of Botany;*" immortal works! which have created such an universal taste for the science, with the correctest notions;—but to crown you "*Prince of Botanists,*" a gigantic labour presented itself to your enlarged understanding, the revision of the "*Gardener's Dictionary, by Miller;*" which immense undertaking would have appalled any other heart but your's, which, indeed, is never wearied in useful or benevolent exertions, and fortunately for the world, by Providence granting you health and life, has been now accomplished with a skill, a diligence, and knowledge, such as must astonish an expecting and admiring world, and weave round your name laurels that will never fade; and afford you also the present satisfaction of having, like LINNÆUS, lived to some useful purpose, of having done more than any *one individual* ever accomplished before: and when I reflect, that I had the felicity of being formerly your pupil at Cambridge, it recalls back to my recollection the many obligations I owe to you, both public and private—your admirable instructions—your parental attentions to me, as well as to all your pupils, who now look up to you not only as *pre-eminent* in Botany, but as the *best of men;* so that when you shall be called to another *Paradise,* for your learning hath made this an earthly one, having so well displayed the power, wisdom, and goodness of GOD in the vegetable world, you will smile upon the happiness you are leaving behind, and with calm serenity will shake off the earthly coil, and put on immortality, and hear those rapturous words, "*Well done, thou good and faithful servant, enter thou into the joy of thy Lord.*" To you, most venerable Professor, the mention of *death,* which we are so selfish as to hope is yet far distant from you, hath "no terror in the sound," nor needs any excuse; for should this DEDICATION afford you any satisfaction, as being a *testimonial* of *grateful respect* from a favourite pupil, the latter part of it will be by you esteemed the most pleasing, so superior rise the *plaudits* to characters, who *conquer Nature,* not *nations;* and the names of *such Worthies* will live in remembrance and repute when *these Monsters (Warriors) in the forms of men* shall be either forgotten or despised. For at this period, *one Monarch* dares, in the face of that religion, which teaches no difference amongst men, all proceeding from one common Father, in Heaven, to wage universal war only from motives of a cursed ambition! All kinds of crimes are every hour accomplishing on the ensanguined theatre of cruel war! The man of sensibility, his heart overwhelmed with grief and shame, beholds such atrocious scenes with horror! There is no counterpart in Nature to compare with such Men. *Tigers* do not even gorge themselves with the blood of *Tigers!*

................parcit
Cognatis maculis similis fera....
JUVENAL.

BOTANY indeed should particularly enter into the education of *Princes;* then they would see, that each country has its peculiar productions, and the obligations nations stand in to different climes, connected together by reciprocal wants, and knit to each other by the blessings of *commerce;* then they would learn to respect other countries, and make a *garden*, not a *wilderness*, of this world; a delightful pursuit would engage their attention; wars would cease from the earth, and peace with happiness reign perpetual. To accomplish so desirable a purpose, your Works must do more than those of any other person; and your admirable "*Flora Rustica*," and "*Gardeners' Dictionary*," will instruct how each plant is to be cultivated; and that you may live to see such Result from your Publications, is the ardent Prayer of one who has now the honour to sign himself,

DEAR PROFESSOR,

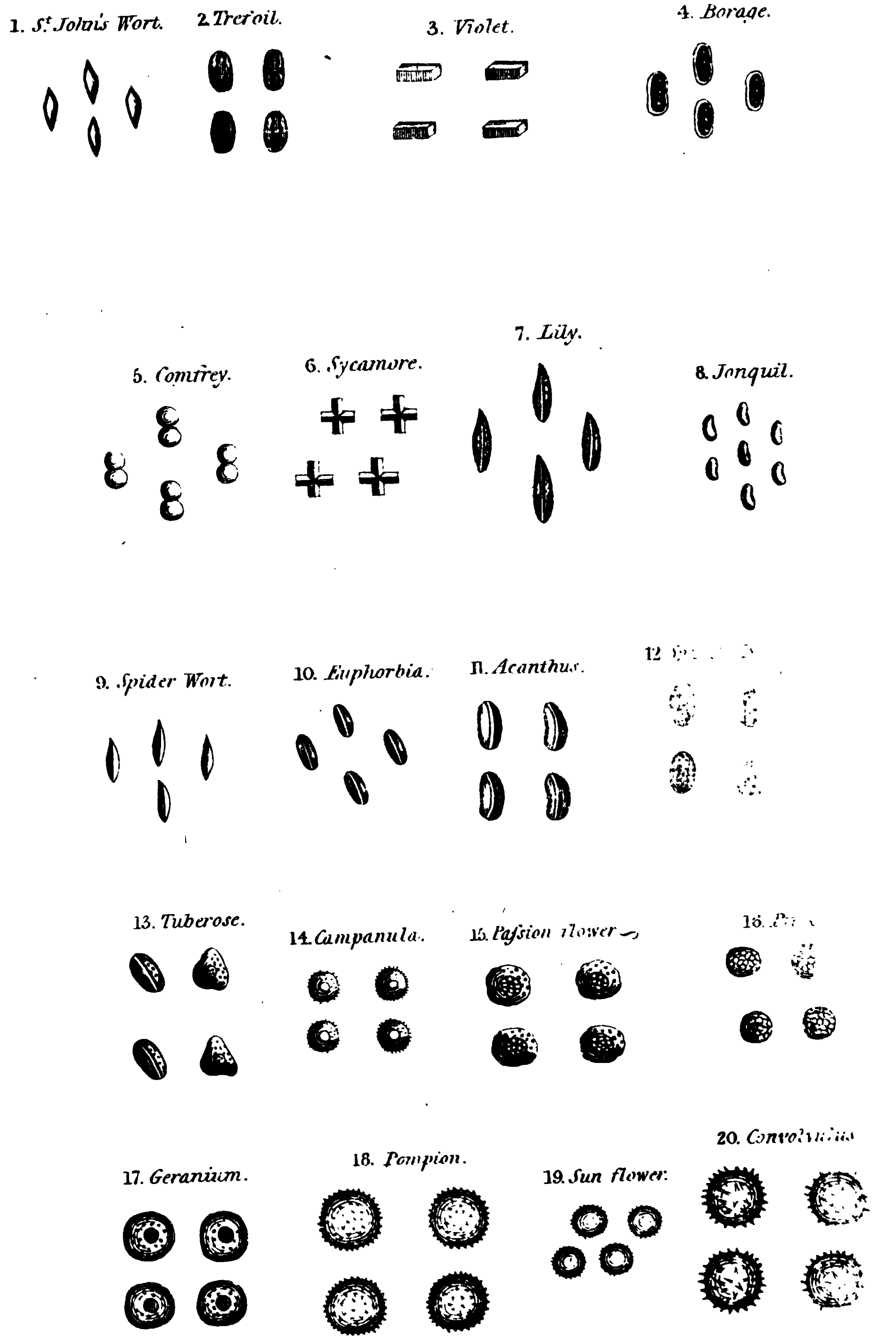
WITH EQUAL RESPECT, ESTEEM, AND GRATITUDE,

YOUR OBLIGED AND EVER DEVOTED FRIEND,

ROBERT JOHN THORNTON, M.D.

Hinde Street, Manchester Square,
May 1, 1810.

FARINA OF FLOWERS.


1. St. John's Wort.
2. Trefoil.
3. Violet.
4. Borage.
5. Comfrey.
6. Sycamore.
7. Lily.
8. Jonquil.
9. Spider Wort.
10. Euphorbia.
11. Acanthus.
12.
13. Tuberose.
14. Campanula.
15. Passion flower.
16.
17. Geranium.
18. Pompion.
19. Sun flower.
20. Convolvulus

[illegible] del.

London, Published by Dr. Thornton, Jany. 1, 1812.

THE CONSTITUENT PARTS OF FLOWERS.

THE fault of all Botanical Works, as far as I am able to judge, is, that they crowd at once too many ideas upon the learner, who soon gets out of his depth; but as the highest eminences are mounted in time, by means of a *ladder*, so we conduct our reader, *step by step*, until he will be able at last to grasp the whole Science. The mode of ANALYSIS and SYNTHESIS will be pursued, as far as it can be done, and we shall proceed on from general ideas to particular ones, as the most clear and certain method of acquiring real knowledge. Thus after our ANALYSIS, proceeds the

SYNTHESIS, viz.

FLOWERS, although apparently so diversified, consist but of *eight* parts.

I. The PISTIL (*Pistillum*), in the centre of the flower.

II. The STAMEN (*Stamen*), exterior to this.

Both these are *projecting* bodies, being *extensions* (according to LINNÆUS) the *first*, of the *pith*; and the *second*, of the *wood*.

The PISTIL is discriminated by a *swollen base*, which is the seed-vessel, or GERMEN, which being opened discloses the seeds.

The STAMEN is discriminated by having a *part which forms* and *contains* coloured *farina*, or *pollen*, hence called an ANTHER by Botanists.

A *perfect* or *complete* PISTIL is composed of three *Parts*:—

1. The STIGMA (*Stigma*), at top, never absent, though sometimes obscure.
2. The STYLE (*Stylus*), elevates the Stigma, not absolutely essential.
3. The GERMEN (*Germen*), or seed-vessel, always present.

An *imperfect* PISTIL has no *Style*.

A *perfect* or *complete* STAMEN is composed of two *Parts*:—

1. The ANTHER (*Anthera*), at top, containing the fertilizing pollen, always present.
2. The FILAMENT (*Filamentum*) elevating the anther, not so essential, being absent in some flowers.

An *imperfect* STAMEN has no *filament*.

When the STAMENS and PISTILS are found together, the flower is then called BISSEXUAL.

When these are separate, being placed in different flowers, the flower is then called UNISEXUAL.

For the protection and nourishment of the CENTRAL ORGANS of vegetables, (viz. the PISTILLA and STAMINA) Nature has usually furnished two other Parts.

III. The COROLLA (*Corolla*), interior.

IV. The CALYX (*Calyx*), exterior to this part.

Both *expanded bodies*, being expansions, the *one* of the *bark*, and the *other* of the *rind*.

These are discriminated not only by their *respective situations*, but by the *greater delicacy* of the COROLLA compared with the CALYX, the former having usually *coloured* PETALS, the latter green LEAVES. These parts are not absolutely essential, some flowers being destitute of one, or both of them.

As an appendage to the Corolla, there is found in some plants—

V. The NECTARY (*Nectarium*), usually for the secreting and containing of honey.

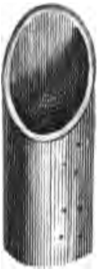
We reckon also as forming the flower—

VI. The PERICARP (*Pericarpium*), which is only the *germen enlarged*, filled with *mature seeds*.

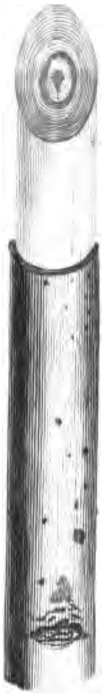
VII. The SEEDS (*Semina*), the *rudiments* of the *new plant*, and

VIII. The RECEPTACLE (*Receptaculum*), the *basis* upon which *all the other parts rest*.

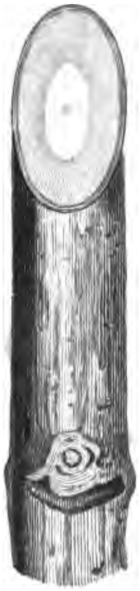
The rind & Bark of the Willow
stript from the Wood.



The Wood of a branch of Willow
and Pith in the Center

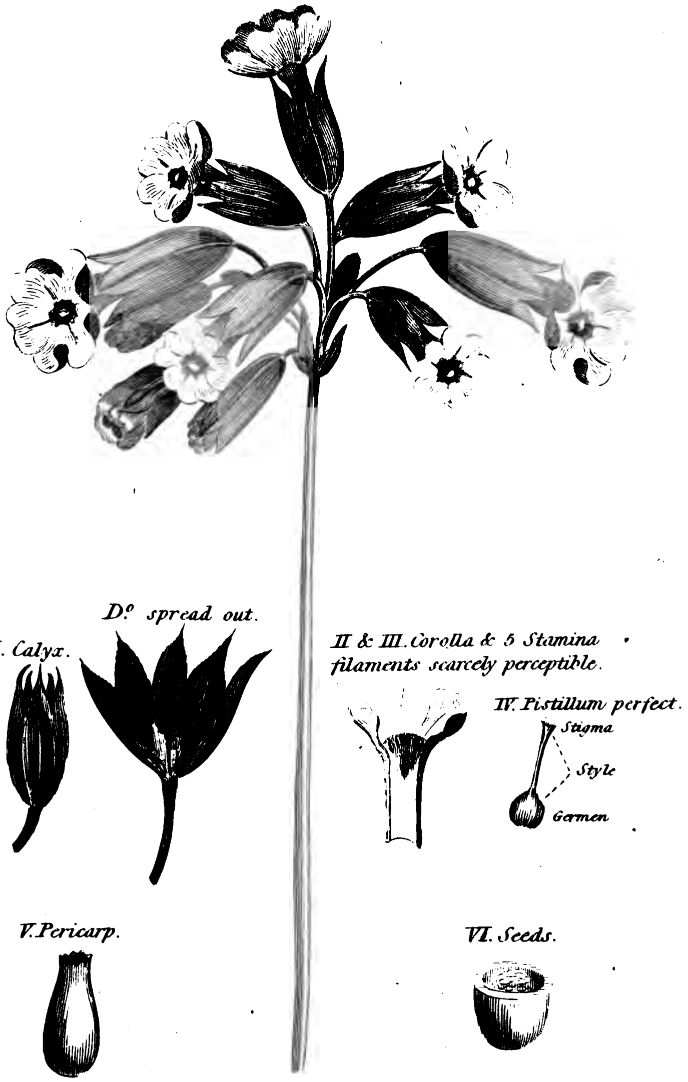


A transverse Section of Elder



PRĪMŬLĂ VĒRĪS.

COMMON COWSLIP.


I. Calyx.
D^o. spread out.
II & III. Corolla & 5 Stamina
filaments scarcely perceptible.
IV. Pistillum perfect.
Stigma
Style
Germen
V. Pericarp.
VI. Seeds.

A British Plant common in Meadows
Selected as an illustration being an early visitant
(Flowers bisexual)

Henderson del.

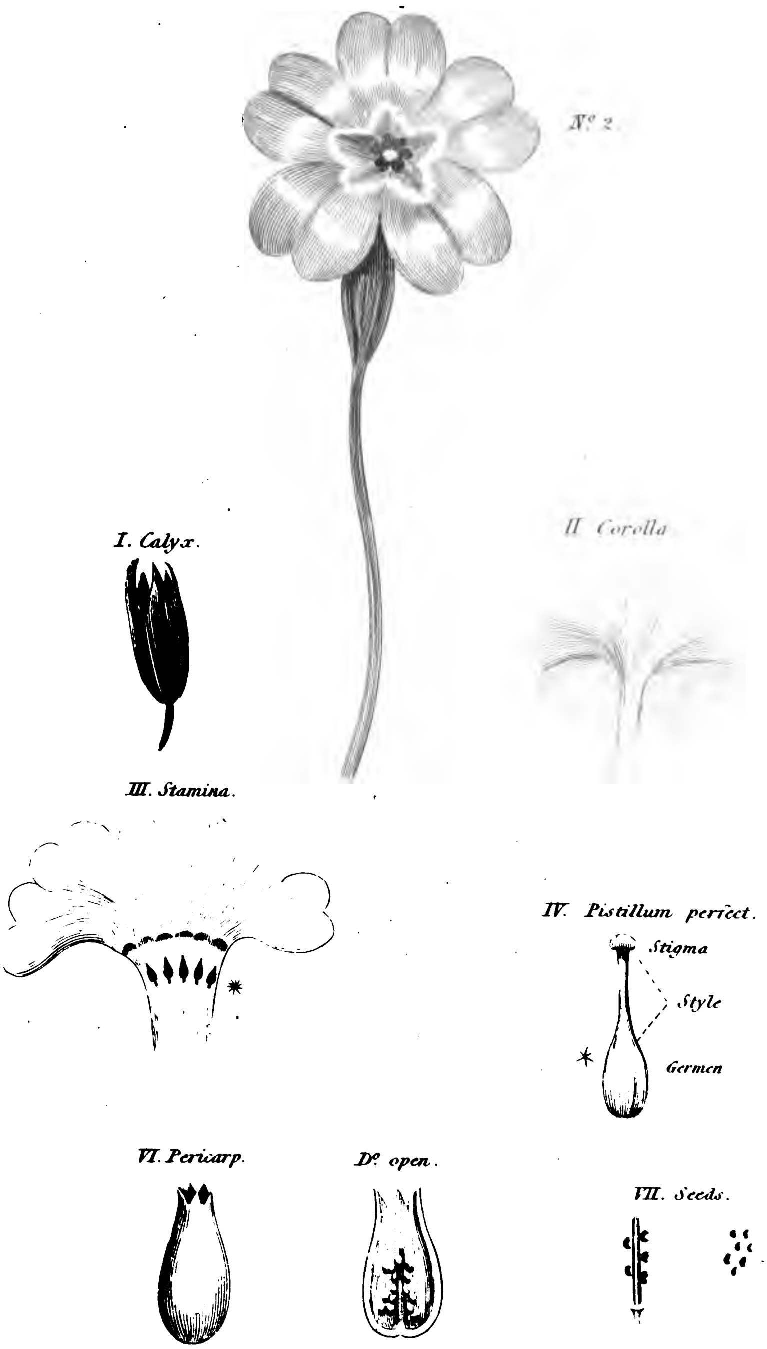
Cooper sculp.

London, Published by Dr. Thornton, Decr. 1 1810.

Plate 7.

PRĪMŬLĂ VŪLGĀRIS.

PRIMROSE.


No 2.
I. Calyx.
II Corolla
III. Stamina.
IV. Pistillum perfect.
Stigma
Style
Germen
VI. Pericarp.
Do open.
VII. Seeds.

Henderson del. A British Plant common in Meadows. Cooper sculp.

(Flowers bisexual.)

London, Published by Dr Thornton. Decr 1. 1810.

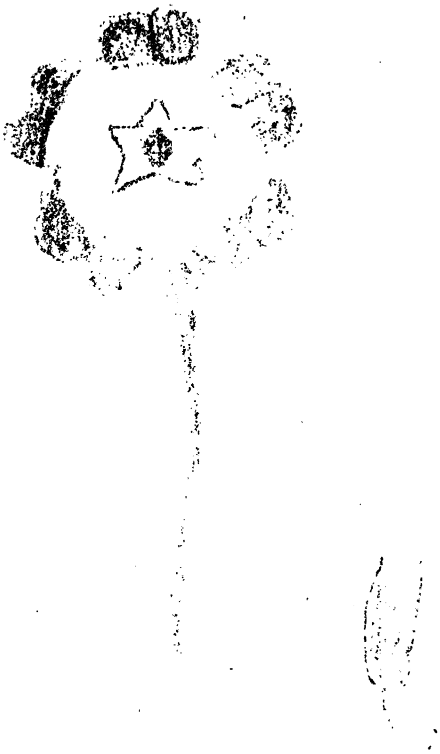
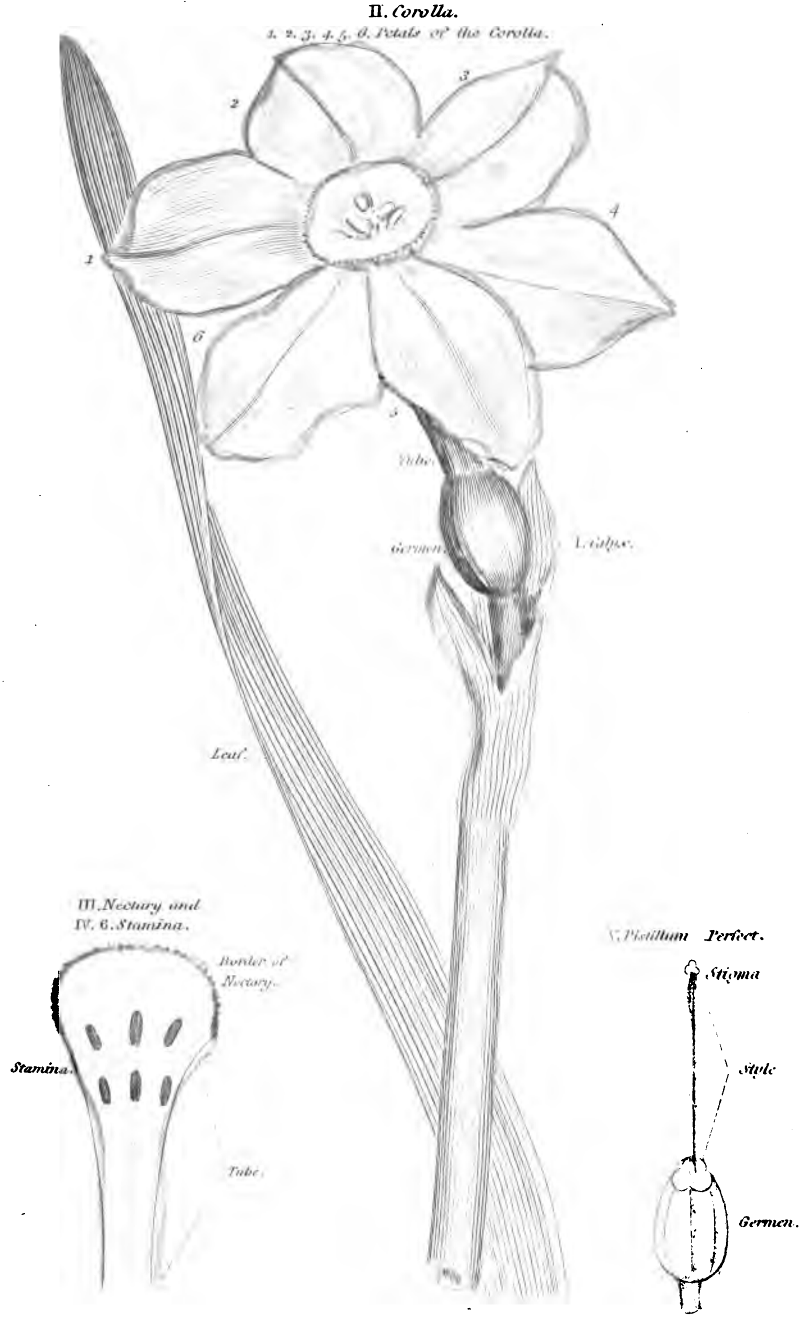


Plate 8.

NARCĪSSUS POĒTICUS.

POETIC NARCISSUS.



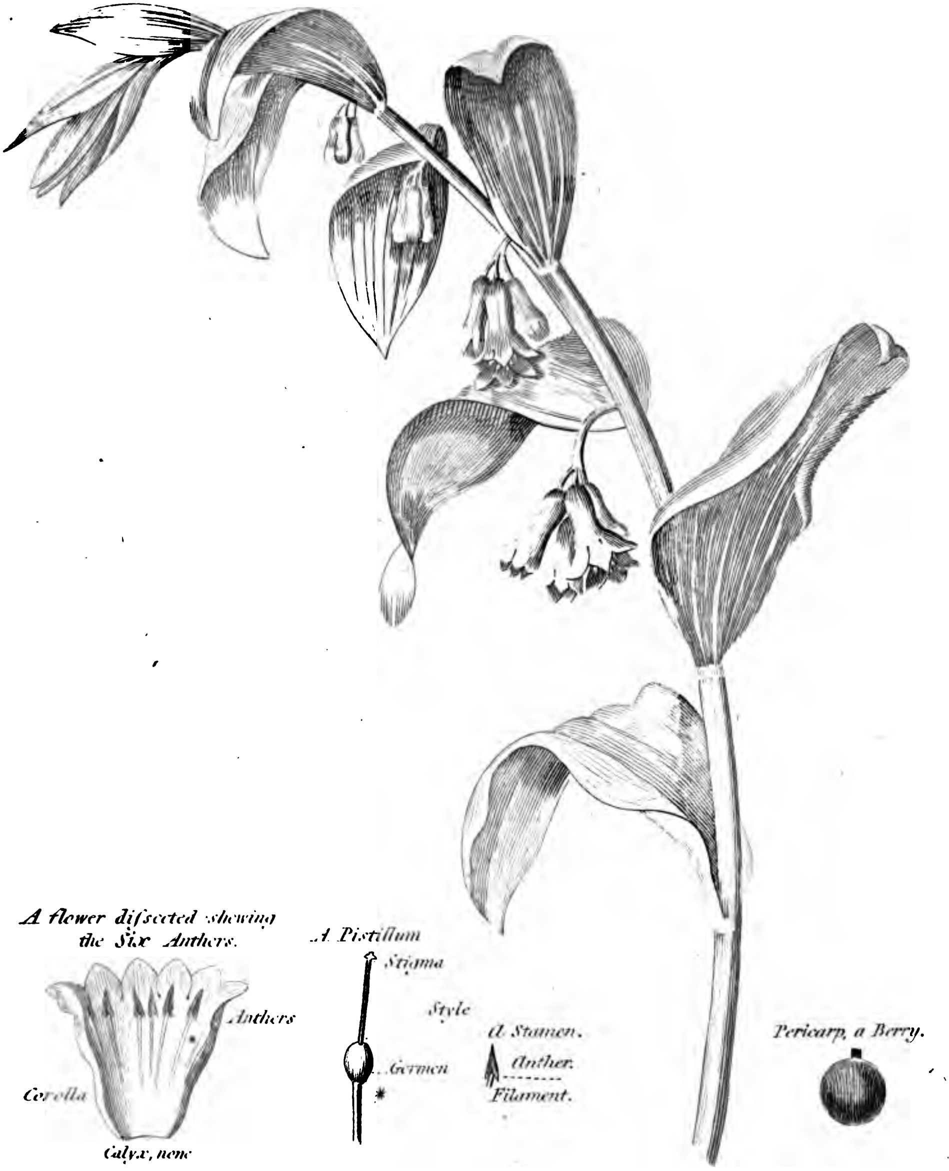
SUPPOSED TO BE A BRITISH PLANT.

Henderson del. *(Flowers bisexual.)* *Cooper sculp.*

London, Published as the Act Directs, by Dr. Thornton, Dec. 1, 1810.

Convallaria Multiflora.

Common Solomon's Seal



(A BRITISH PLANT FOUND IN WOODS)

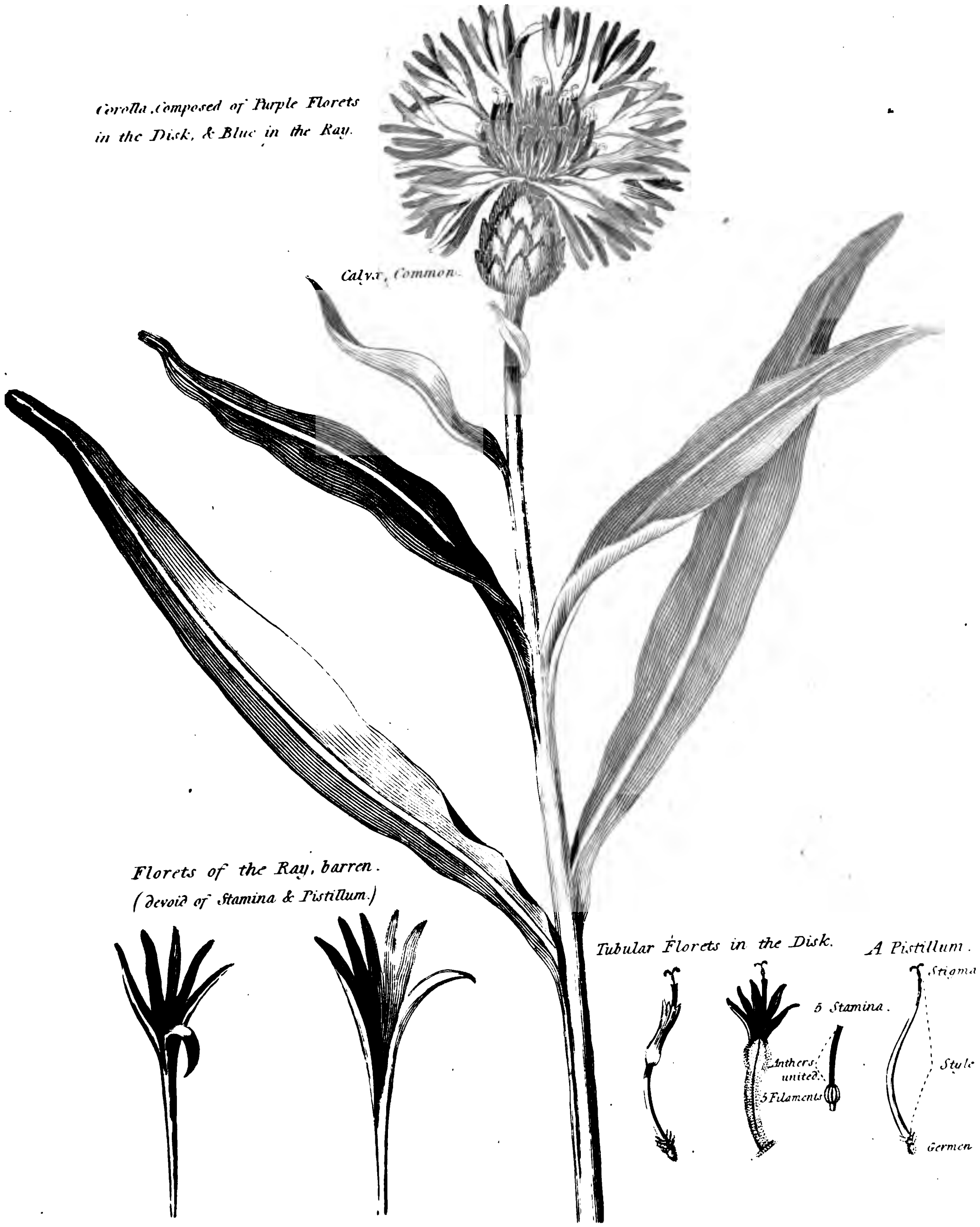
Flowers bisexual

Henderson del.

CENTAUREA CYANUS,

COMMON BLUE BOTTLE.

A Compound Flower.


Corolla, Composed of Purple Florets in the Disk, & Blue in the Ray.
Calyx, Common.
Florets of the Ray, barren.
(devoid of Stamina & Pistillum.)
Tubular Florets in the Disk.
5 Stamina.
Anthers united.
5 Filaments
A Pistillum.
Stigma
Style
Germen

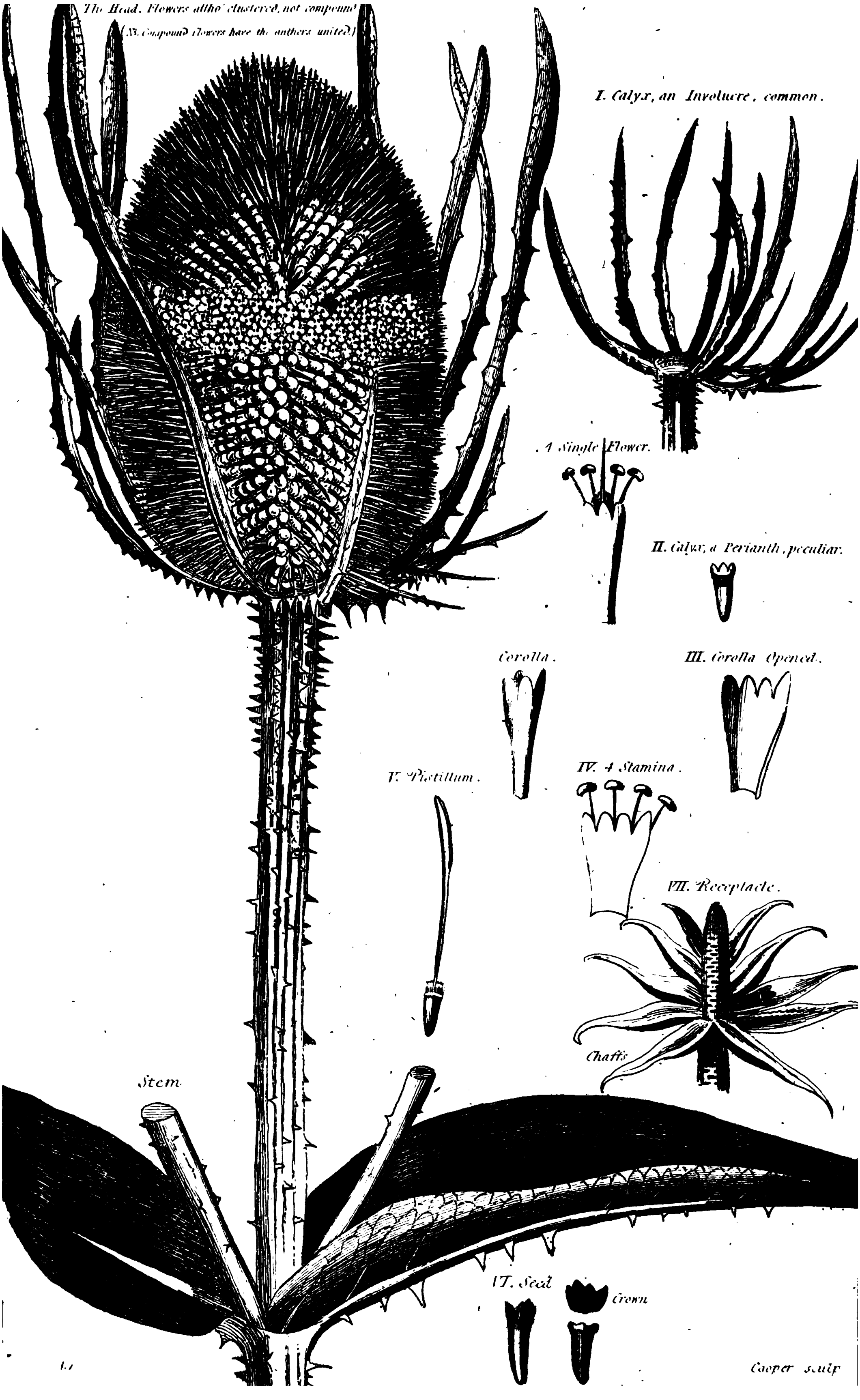
A British Plant found in Corn-fields.

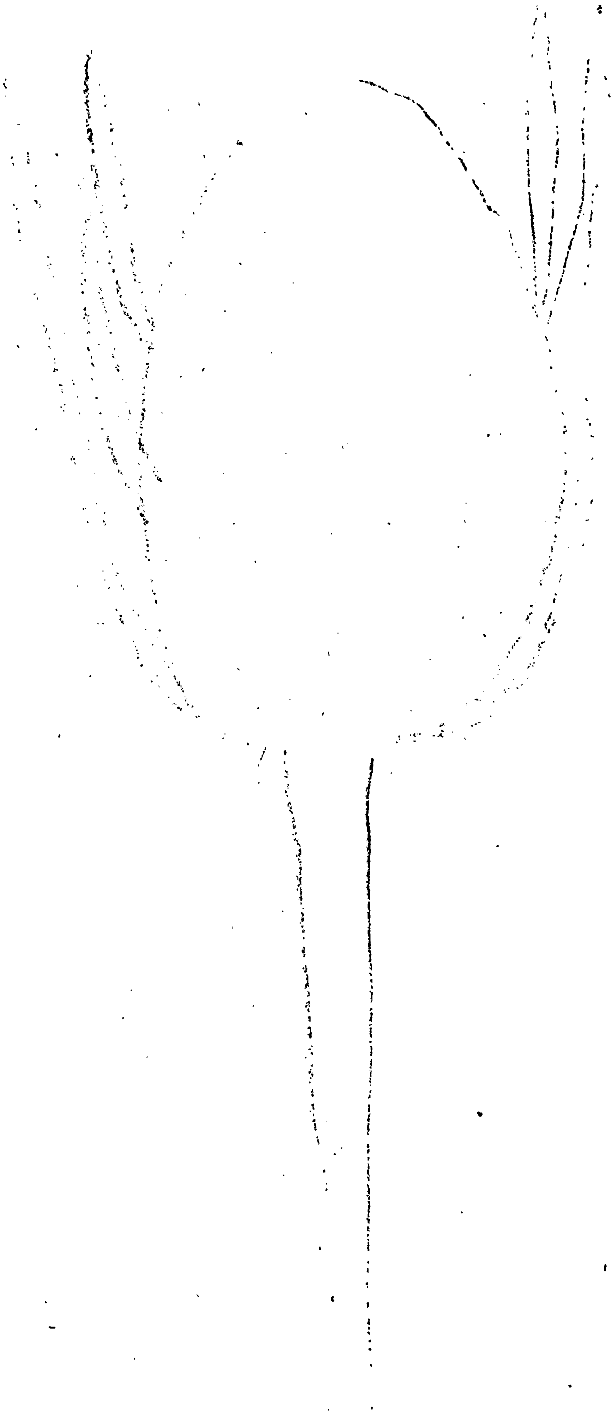
(Flowers bisexual & neuter.)

Henderson del

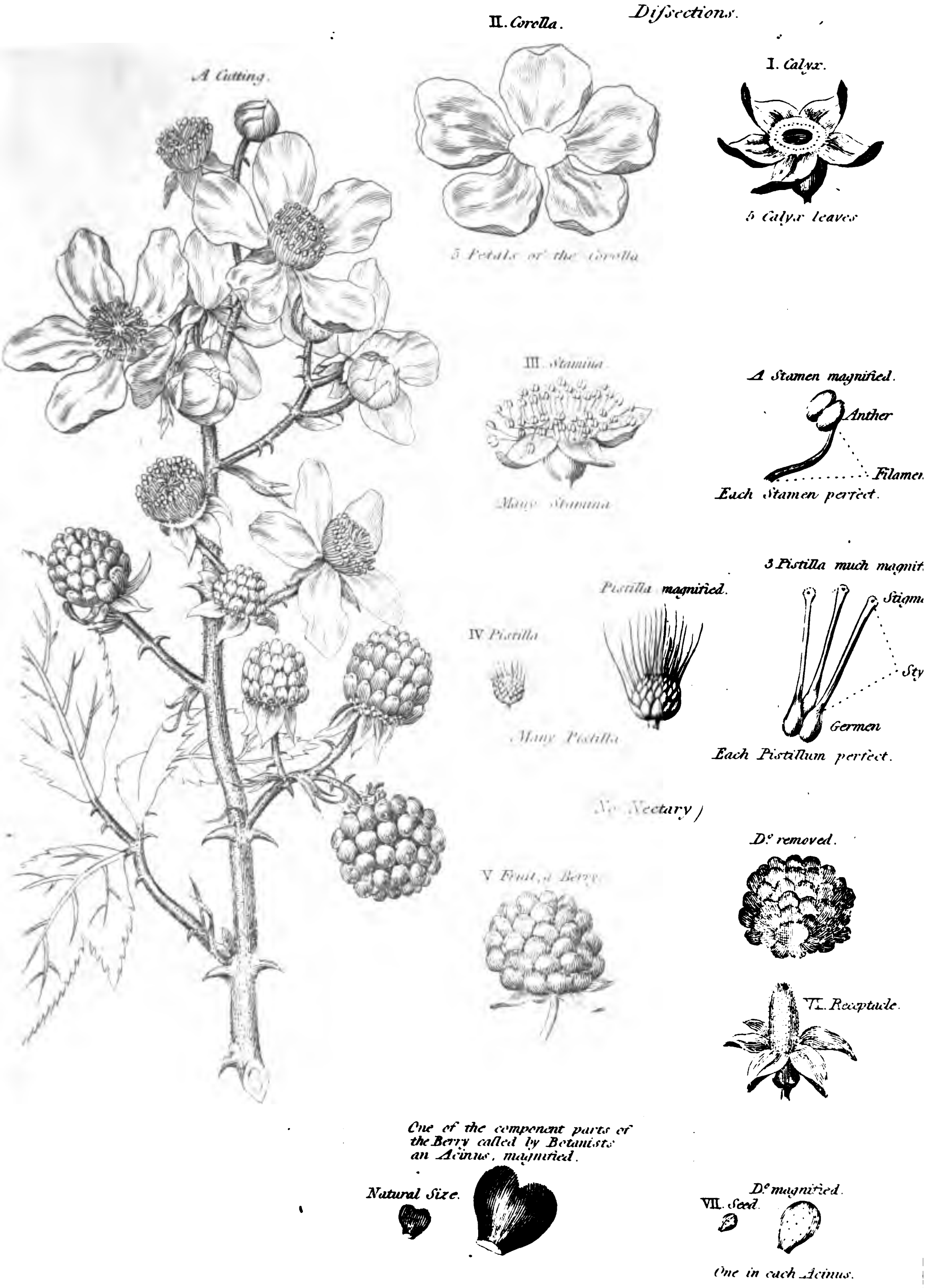
Parks sculp.

London, Published by Dr Thornton, Decr 1.1810.


The Head. Flowers altho' clustered, not compound
(N.B. Compound flowers have the anthers united.)
I. Calyx, an Involucre, common.
A Single Flower.
II. Calyx, a Perianth, peculiar.
Corolla.
III. Corolla Opened.
V. Pistillum.
IV. 4 Stamina.
VII. Receptacle.
Chaffs
Stem
VI. Seed
Crown
Cooper sculp

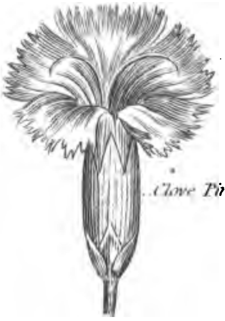


Rubus fruticosus, or Common Bramble.

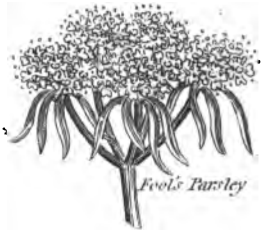

Dissections.
A Cutting.
II. Corolla.
5 Petals of the Corolla
I. Calyx.
5 Calyx leaves
III. Stamina
Many Stamina
A Stamen magnified.
Anther
Filamen
Each Stamen perfect.
IV Pistilla
Many Pistilla
Pistilla magnified.
3 Pistilla much magnif
Stigm
Sty
Germen
Each Pistillum perfect.
No Nectary)
V Fruit, a Berry.
Do. removed.
VI. Receptacle.
One of the component parts of the Berry called by Botanists an Acinus, magnified.
Natural Size.
Do. magnified.
VII. Seed.
One in each Acinus.

The different kinds of Calyx.

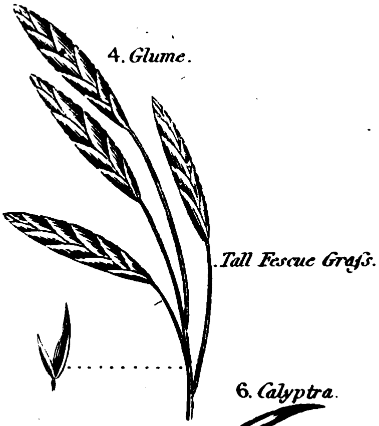
1. Perianth.



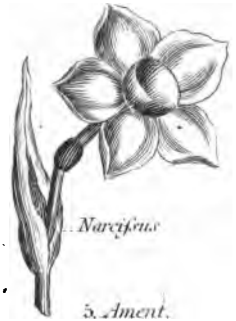
2. Involucre.



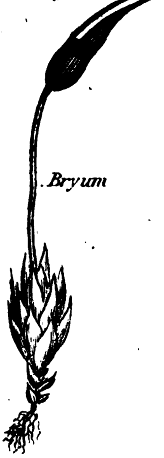
4. Glume.


Tall Fescue Grass.

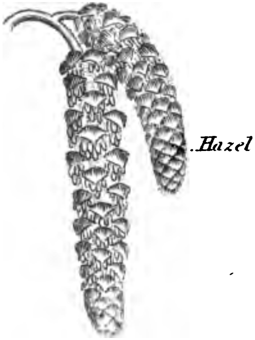
3. Spathe.



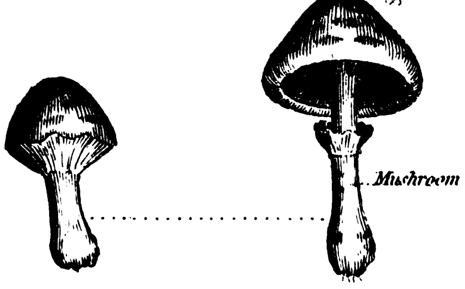
6. Calyptra.



5. Ament.



7. Volva.

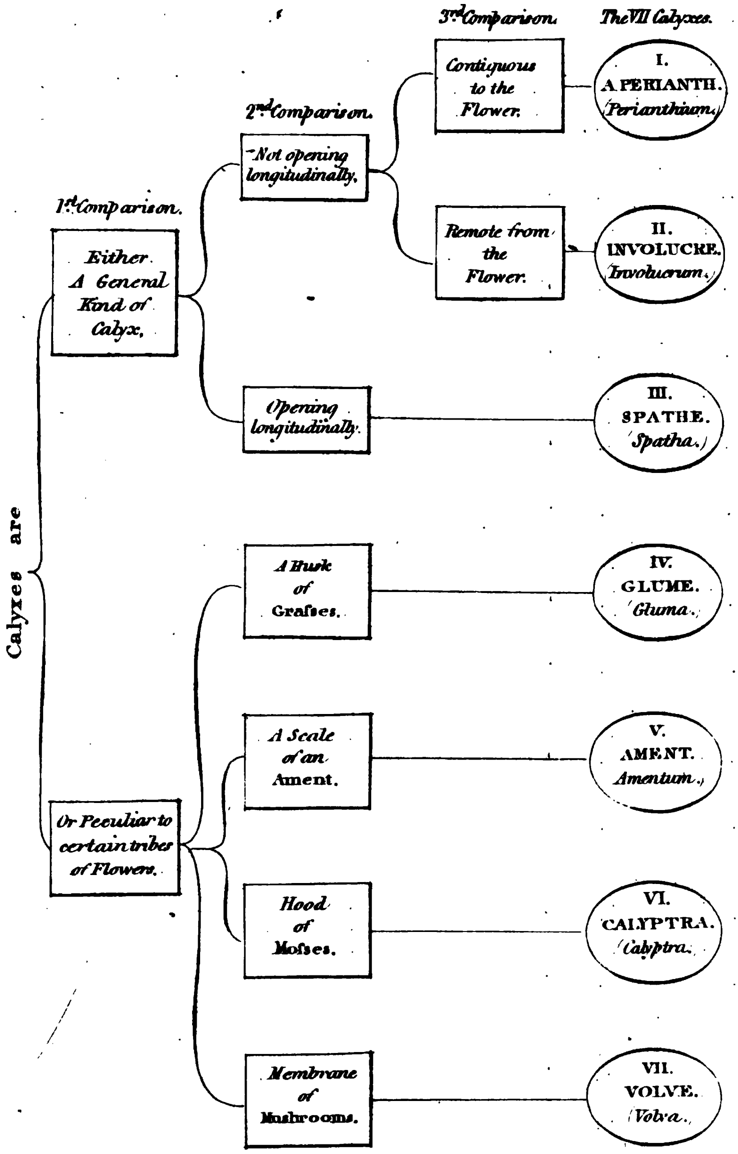


Henderson del.

Medland sculp.

London Published by Dr. Thornton. March 1. 1810.

Analysis of Calyxes.



THE DIFFERENT KINDS OF CALYXES.

SYNTHESIS.

HAVING formed a general idea of a flower, viz. I. CALYX, II. COROLLA, III. NECTARY, IV. STAMINA, V. PISTILLA, VI. PERICARP, and VII. SEEDS, we will now consider each of these parts, in a more particular manner, for

The term CALYX, like our words, horse, bird, dog, habitation, is a generic word, including several distinct species, thus:

I. PERIANTH (*Perianthium*), is the outer expanded covering of a flower,—the most common kind of Calyx,[a]—usually green,—sometimes coloured,[b] contiguous to the corolla,—protecting the organs for reproduction in their infant state, sometimes caducous,[c]—often abiding with the fruit,[d]—and sometimes even serving the office of pericarp,[e]—usually single,—occasionally double,[f]—not unfrequently very obscure,[g]—or wholly deficient.[h]

---

[a] Of the 1021 genera of plants, known in the time of Dr. Alston, Professor of Botany at Edinburgh, he observes, 673 had a PERIANTH; 75, an INVOLUCRE; 72, a SPATHA; 29, a GLUME; 18, an AMENT; 3, a CALYPTRA; 2, a VOLVA; and 110, no Calyx of any kind.

[b] *Coloured*) as in the *Passion Flower*, *Indian Reed*, &c.

[c] *Caducous*) falling off, as in the *Poppy*, which very quickly loses its two Calyx leaves.

[d] *Abiding*) as in the *Egg Plant*, where it increases to a large size.

[e] *Serving the Office of Pericarp*) the office of seed-vessel, as in the *Nettle*.

[f] *Double*) as in the *Mallow*.

[g] *Obscure*) as in the *Rose-bay*, RHODODENDRON.

[h] *Deficient*) absent, as in the *Lilies*.

II. INVOLUCRE (*Involucrum*), is a calyx remote from the flower,—most commonly stationed[i] at the foot of a general, or partial, umbel.[k]

III. SPATHE (*Spatha*), a species of calyx, which first involves the infant flowers like a sheath, and then opens longitudinally.

IV. GLUME (*Gluma*), the outer valves, or husks of corn, or grass, enclosing one, or more, florets.

V. AMENT (*Amentum*), small chaffy scales, protecting the florets placed on a thread-like common receptacle.

VI. CALYPTRA (*Calyptra*), the covering of a moss, placed over it, like a cap or bonnet.

VII. VOLVE (*Volva*), a membrane, which involves the fungus in its infant state, and which afterwards appears in a lacerated form on the foot stalk.

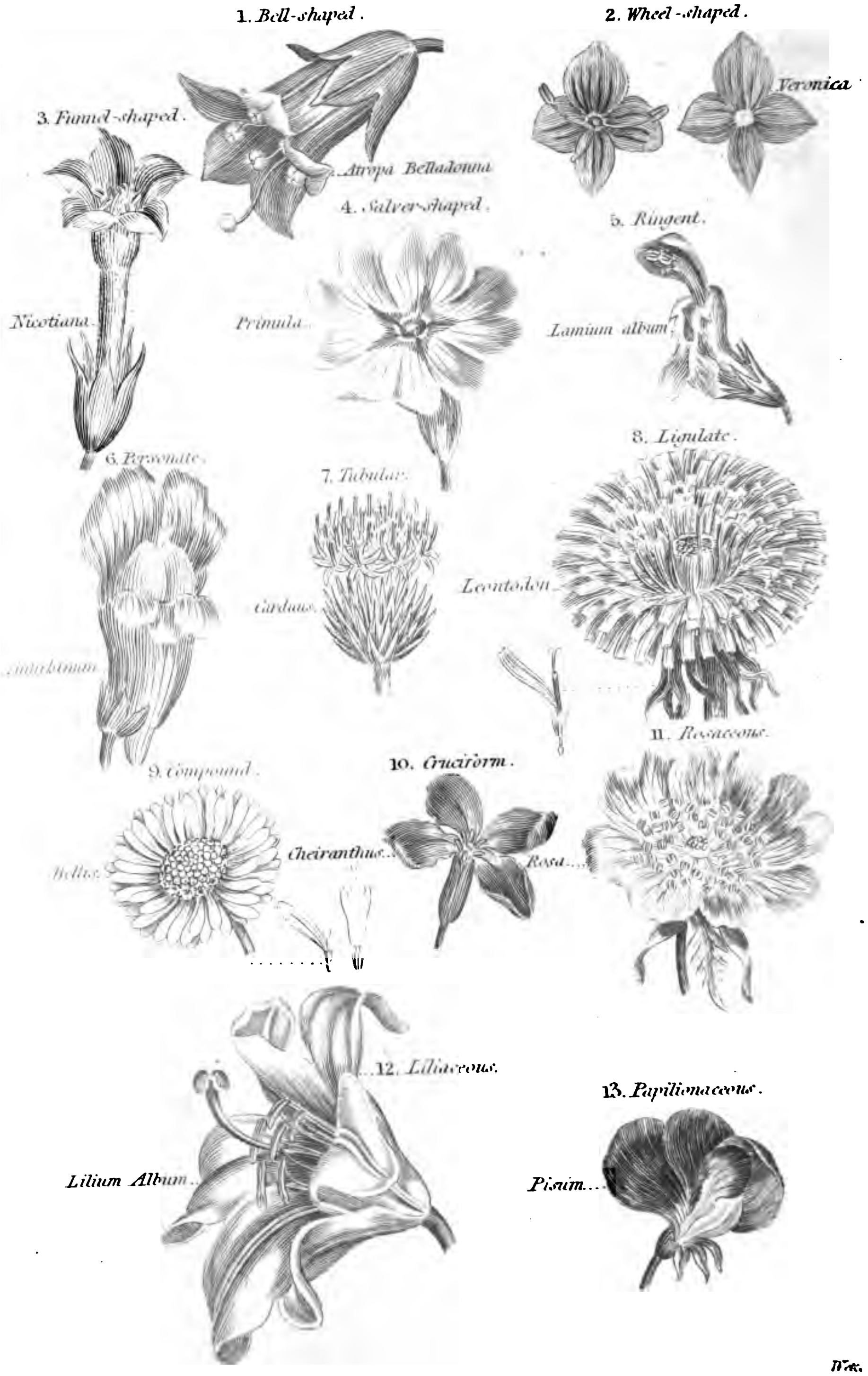
N. B. The CALYX, like other green bodies, possesses a power of secreting from its surface *Vital* or *Oxygen Gas*, whereas, when coloured, like the painted corolla, it then deteriorates the atmosphere, imbibing within itself the vital air, giving out azotic gas, as does also fruit.

---

[i] *Most commonly stationed*) not always, as in *Anemony* and *Passion-Flower*, a somewhat rare occurrence.

[k] *A general and partial Umbel*) Umbelliferous, or Umbel-bearing plants, are of two kinds; from a common centre proceed the peduncles, or flower stalks, like the sticks of an umbrella, and when each peduncle terminates with a flower, as the *Geranium*, *Cowslip*, *Meadia*, the Umbel is then called *general;* but if these peduncles, instead of terminating in a flower, end in a fulcrum, or point, whence other peduncles proceed, and these terminate each in a flower, the Umbel is then called *partial;* and hence the involucre itself is called a *general* or *partial* involucre. *Fool's Parsley* is an example of this last kind.

The different kinds of Corollas.

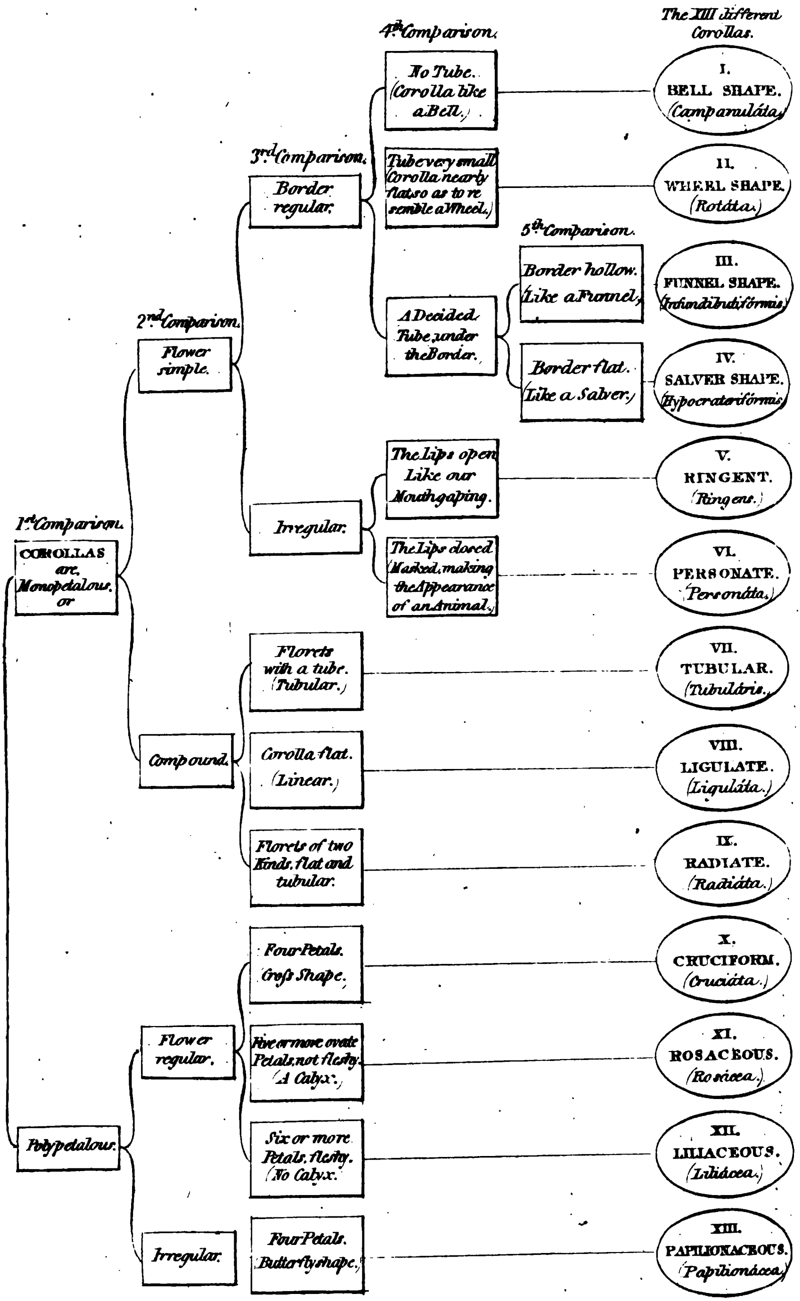

1. Bell-shaped.
2. Wheel-shaped.
Veronica
3. Funnel-shaped.
Atropa Belladonna
4. Salver-shaped.
5. Ringent.
Nicotiana
Primula
Lamium album
6. Personate.
7. Tubular.
8. Ligulate.
Carduus
Leontodon
Antirrhinum
11. Rosaceous.
9. Compound.
10. Cruciform.
Bellis
Cheiranthus
Rosa
12. Liliaceous.
13. Papilionaceous.
Lilium Album
Pisum

Henderson del.

[illegible]

London. Published by Dr Thornton, March 1, 1820.

Analysis of Corollas.


The XIII different Corollas.
1st Comparison.
COROLLAS are Monopetalous. or
2nd Comparison.
Flower simple.
3rd Comparison.
Border regular.
4th Comparison.
No Tube. (Corolla like a Bell.)
Tube very small Corolla nearly flat so as to resemble a Wheel.)
A Decided Tube under the Border.
5th Comparison.
Border hollow. Like a Funnel.)
Border flat. Like a Salver.)
Irregular.
The Lips open Like our Mouth gaping.
The Lips closed Masked, making the Appearance of an Animal.)
Compound.
Florets with a tube. (Tubular.)
Corolla flat. (Linear.)
Florets of two kinds, flat and tubular.
Polypetalous.
Flower regular.
Four Petals. Cross Shape.
Five or more ovate Petals, not fleshy. A Calyx.)
Six or more Petals, fleshy. (No Calyx.)
Irregular.
Four Petals. Butterfly shape.)
I. BELL SHAPE. (Campanuláta.)
II. WHEEL SHAPE. (Rotáta.)
III. FUNNEL SHAPE. (Infundibulifórmis.)
IV. SALVER SHAPE. (Hypocraterifórmis.)
V. RINGENT. (Ringens.)
VI. PERSONATE. (Personáta.)
VII. TUBULAR. (Tubuláris.)
VIII. LIGULATE. (Liguláta.)
IX. RADIATE. (Radiáta.)
X. CRUCIFORM. (Cruciáta.)
XI. ROSACEOUS. (Rosácea.)
XII. LILIACEOUS. (Liliácea.)
XIII. PAPILIONACEOUS. (Papilionácea.)

THE DIFFERENT KINDS OF COROLLAS.

SYNTHESIS.

BESIDES the guardianship of a CALYX, many flowers have also their COROLLA, which has a similar office, and it is not improbable, that these expansions have likewise a reference to the *solar rays*, which these parts either increase by a reflective power, or ward off from the central organs; hence the advantages of the variety in their shapes and colours.

However apparently varied, the Forms of this part of the flower are circumscribed. Thus—

The term COROLLA is a compound idea, made up of the following distinct notions, as—

I. BELL-SHAPED (*Campanulata*), hollowed internally like a bell, often swollen at the sides, and without a tube.

II. WHEEL-SHAPED (*Rotata*), slightly hollow, or the border flat, and with so little a tube as to resemble a wheel on the ground.

III. FUNNEL-SHAPED (*Infundibuliformis*), having the border of the Corolla like a cone, and placed upon a tube, so as to resemble a funnel.

IV. SALVER-SHAPED (*Hypocrateriformis*), having the border of the Corolla flat, and placed upon a tube resembling a salver.

V. Ringent (*Ringens*), having the border of the Corolla like two open lips, placed upon a tube, resembling a person gaping.

VI. Personate (*Personatæ*), having the border of the Corolla like the lips, the mouth closed, greatly resembling the snout of an animal, also placed upon a tube.

VII. Tubular (*Tubularis*), when the floret of a compound flower ends in a tube, the border being five-cleft.

VIII. Ligulate (*Ligulata*), when the corolla of the floret is linear, i. e. resembles the strap of a shoe.

IX. Compound Radiate, or Rayed, (*Radiata*), having the two sorts of flowers, *Tubular* and *Ligulate*; *Tubular* in the *Disk* or centre, and *Ligulate* in the *Ray* or circumference.

X. Cruciform (*Cruciata*), having four petals, placed like a St. Andrew's Cross.

XI. Rosaceous (*Rosacea*), having five or more petals, not fleshy, orbicularly placed.

XII. Liliaceous (*Liliacea*), having six or more petals, fleshy, placed also in a circle.

XIII. Papilionaceous (*Papilionacea*), having four petals, of different shapes and sizes, placed so as to resemble a butterfly on the wing.

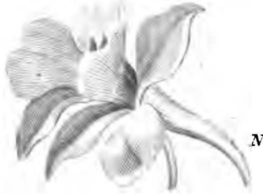
Four Petals.) For the names which these have received, vide explanation of the Botanical Terms applied to the Corolla, page 13.

Plate 17.

The different kinds of Nectaries.

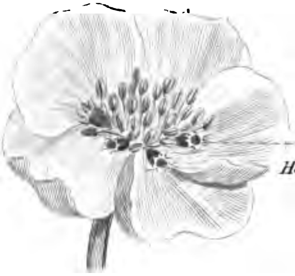
To face p.13.

1. *a Spur.*



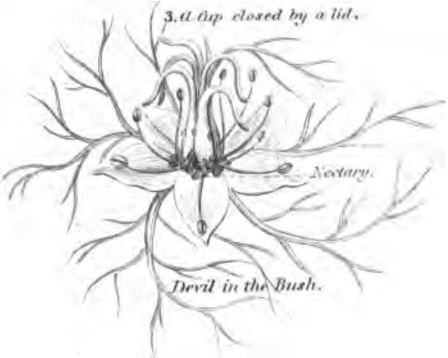
Bee Larkspur.

2. *Small open Cups.*



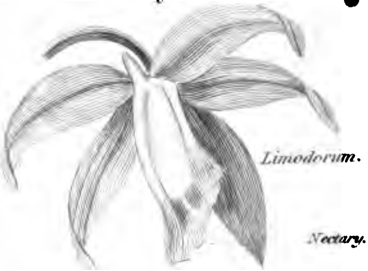
Hellebore.

3. *a Cup closed by a lid.*

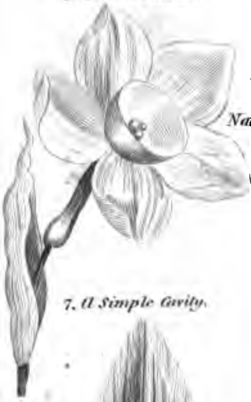


Devil in the Bush.

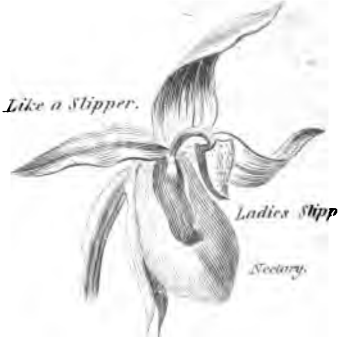
4. *Like the finger of a Glove.*



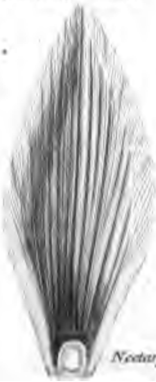
5. *Like a Funnel.*



6. *Like a Slipper.*

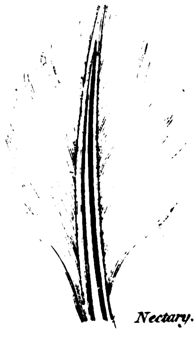


7. *a Simple Cavity.*



7.
Petal of
Crown Imperial.

8. *a Naked Channel.*



8.
Petal of
Lily.

Henderson del. Cooper sc.

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THE DIFFERENT KINDS OF NECTARIES.

THE term Nectary, like the Corolla, is also a complex idea, like our words pigeon, dog, made up of many different individuals, indeed too numerous and diversified, to be distributed under heads, for every singular appearance in different parts of the flower, even unconnected with the corolla, for whatever is not calyx, or stamen, or pistillum, or corolla, whether it secretes honey, or not, is called by botanists, the Nectary.

The following are amongst the most prominent examples :—

1. A spur, or horn (*Nect. corniculatum*).
2. A small open cup (*Cyathus apertus*), small hollow cups, circularly ranged in the interior of the flower.
3. A cup closed by a lid (*Cyathus clausus*), a similar arrangement of nectaries, as in the preceding, but closed with a lid.
4. Like the cut finger of a glove (*Nect. companulatum*), hollowed like the finger of a glove cut off but depending.
5. Like a funnel, upright (*Nect. Infundibuliforme*).
6. Like a slipper (*Nect. calceiforme*).
7. A simple cavity (*Fovea excavata*), an excavation at the base of each petal.

8. A NAKED CHANNEL (*Linea longitudinalis excavata*), an hollow longitudinal groove, in a petal.

9. VILLOUS PROJECTIONS (*Nect. barbatum*), numerous villi placed upon the petal.

10. FILAMENTS WITHOUT ANTHERS, IMITATING STAMINA (*Filamenta sine antheris, veluti stamina*), filiform projections like stamina, each terminated with a clasper.

11. PETAL-LIKE (*Nec. petalum mentiens*).

12. RESEMBLING A NEST OF DOVES (*Columbulos referens*), five cornuted nectaries, the whole resembling much a nest of doves.

13. RESEMBLING DOLPHINS (*Figuram Delphini repræsentans*), like a dolphin elevated on a pillar or filament.

14. LIKE A TONGUE (*Veluti lingua*).

15. RESEMBLING RAYS OF GLORY (*Filamenta versicolorata in orbem posita*), projections in the form of rays of glory.

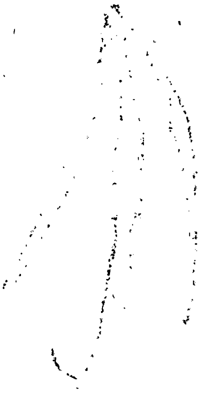
16. GIVING THE APPEARANCE OF VARIOUS ANIMALS (*Nect. formam animalium mentiens*).

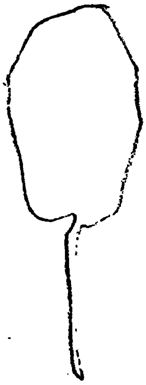
17. A NAKED SCALE (*Squama nuda*).

18. A FRINGED SCALE (*Squama fimbriata*).

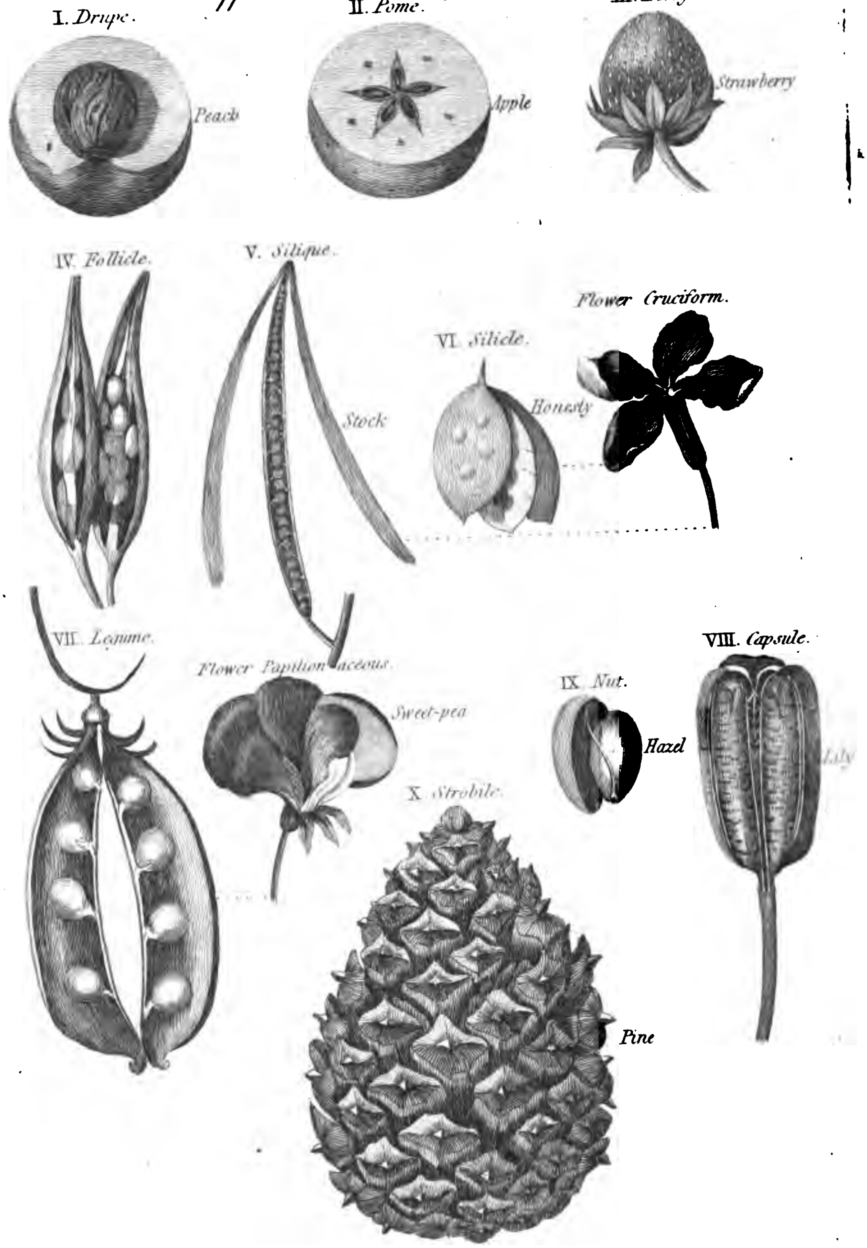
19. GLANDS UPON THE STAMENS (*Glandulæ filamentis adspersæ*).

20. GLANDS AT THE INSERTION OF STAMENS (*Glandulæ filamentis positæ.*)



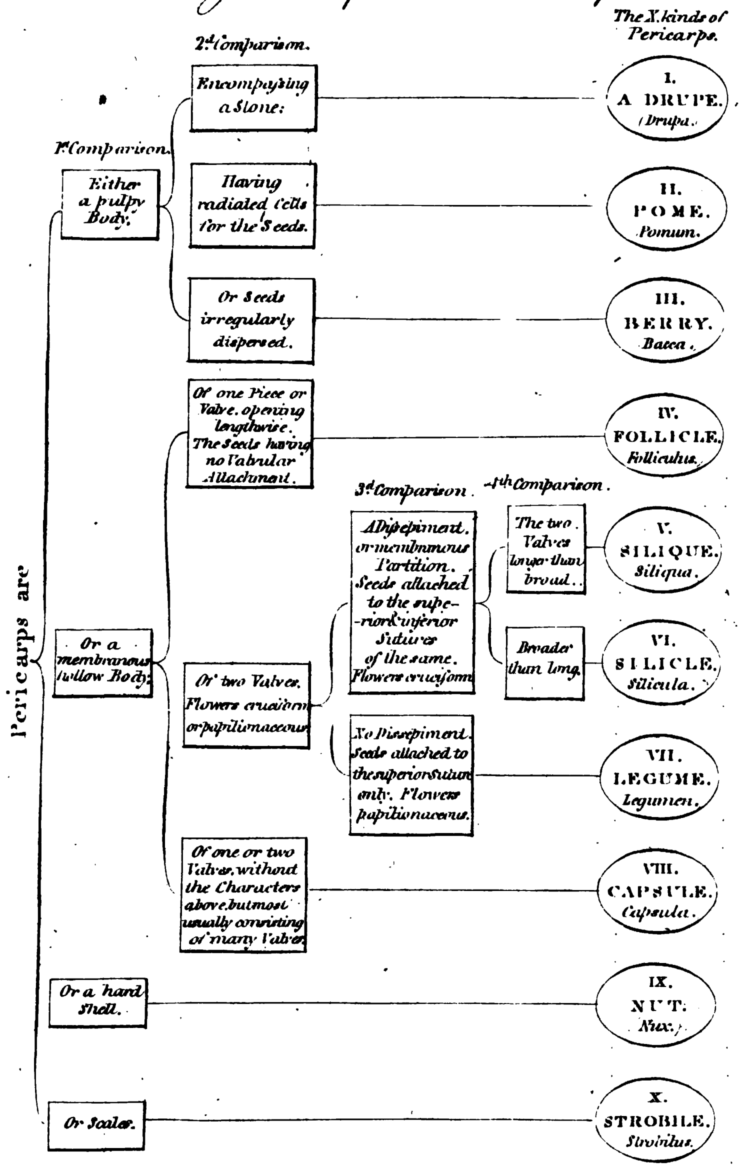


to face page 15. *The different kinds of Pericarp.* Plate 18.


I. Drupe.
Peach
II. Pome.
Apple
III. Berry.
Strawberry
IV. Follicle.
V. Silique.
Stock
VI. Silicle.
Honesty
Flower Cruciform.
VII. Legume.
Flower Papilionaceous.
Sweet-pea
VIII. Capsule.
Lily
IX. Nut.
Hazel
X. Strobile.
Pine

Henderson del. London. Published by Dr. Thornton. June 1st 1810. Hazel sculp.

Analysis of Pericarps.


The X. kinds of Pericarps.
2d. Comparison.
1st. Comparison.
3d. Comparison.
4th. Comparison.
Pericarps are
Either a pulpy Body;
Encompassing a Stone:
Having radiated Cells for the Seeds.
Or Seeds irregularly dispersed.
Or a membranous hollow Body;
Of one Piece or Valve, opening lengthwise. The Seeds having no Valvular Attachment.
Or two Valves. Flowers cruciform or papilionaceous
A Dissepiment, or membranous Partition. Seeds attached to the superior & inferior Sutures of the same. Flowers cruciform
The two Valves longer than broad.
Broader than long.
No Dissepiment. Seeds attached to the superior Suture only. Flowers papilionaceous.
Of one or two Valves, without the Characters above, but most usually consisting of many Valves
Or a hard Shell.
Or Scales.
I. A DRUPE. Drupa.
II. POME. Pomum.
III. BERRY. Bacca.
IV. FOLLICLE. Folliculus.
V. SILIQUE. Siliqua.
VI. SILICLE. Silicula.
VII. LEGUME. Legumen.
VIII. CAPSULE. Capsula.
IX. NUT. Nux.
X. STROBILE. Strobilus.

THE DIFFERENT KINDS OF PERICARPS.

SYNTHESIS.

AFTER the sight and smell have been regaled by flowers, Nature then seems only intent upon the continuation and increase of the species. The CALYX and COROLLA wither; the STAMINA having fulfilled their office, perish, with the STIGMA and STYLE; and the GERMEN alone increases, and then becomes conspicuous, when it is called the PERICARP.

TEN different sorts of PERICARPS, or SEED-VESSELS, are enumerated by botanists.

I. DRUPE (*Drupa*) is a pulpy seed-vessel—incompassing a stone, or nut.

II. POME (*Pomum*) is a pulpy seed-vessel—not enclosing a stone, or nut—in the middle of which are radiated cells for the reception of seeds.

III. BERRY (*Bacca*) is a pulpy seed-vessel, without radiated cells in the centre—having the seeds irregularly dispersed throughout the pulp.

IV. FOLLICLE (*Folliculus*) is a membranous seed-vessel—of one valve—opening longitudinally, i. e. on the side—and having no apparent suture for fastening or attaching the seeds within it.

V. Silique (*Siliqua*) is a membranous seed-vessel—of two valves, with a dissepiment intervening—seeds attached alternately to the upper and under sutures—seed-vessel longer than broad—flowers cruciform.

VI. Silicle (*Silicula*) has the same definition as the last—except that the seed-vessel is rather broader than long.

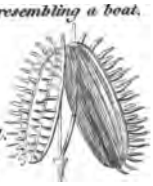
VII. Legume (*Legumen*) is a membranous seed-vessel—of two valves—no dissepiment—seeds attached to the superior suture only—flowers papilionaceous.

VIII. Capsule (*Capsula*) is a membranous seed-vessel—varying in the number of valves—without the characters of Pericarps IV. V. VI. VII. as defined above—splits in a determinate manner into valves.

IX. Nut (*Nux*), a hard stone, or shell, enclosing a kernel—but without a pulpy covering, in which case it would be a Drupe.

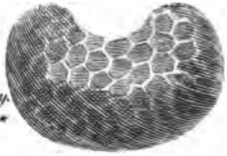
X. Strobile (*Strobilus*) is a seed-vessel composed of ligneous scales, which embrace the seeds within their bosom.

The different kinds of Seeds.



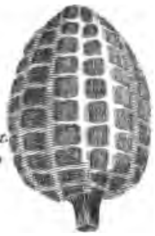
1. A double seed, each resembling a boat.

Fennel. *



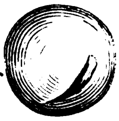
2. Kidney-shaped, with heptagon & pentagon cells.

Poppy. *



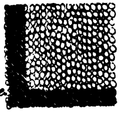
3. Ovate.

Eyebright. *



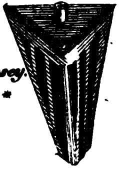
4. Globular.

Pea. *



5. Square.

Foxglove. *

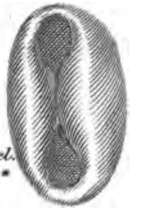


6. Triangular.

Tansey. *

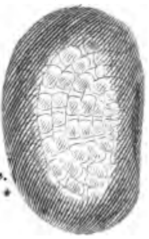
7. Cylindric.

S^t. Johnswort. *



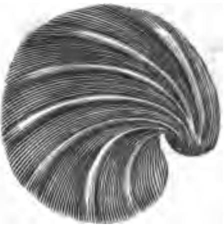
8. Resembling a particular shell.

Sorrel. *



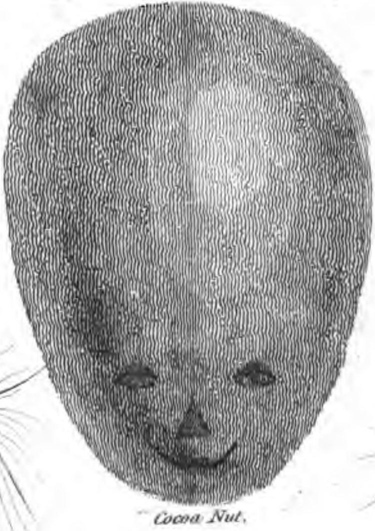
9. Ditto.

Purslane. *



10. Ditto.

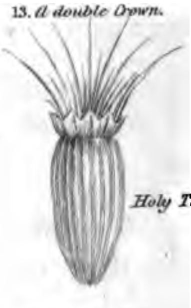
Cinquefoil. *



11. Resembling the Head of a Monkey.

Cocoa Nut.

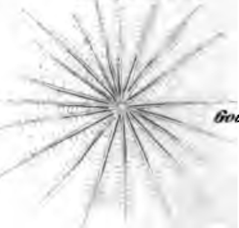
12. A single Crown.



13. A double Crown.

Holy Thistle.

14. A Shuttle Cock.



15. A Spiders Web.

Goats-beard.

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Cooper sculp.

THE DIFFERENT KINDS OF SEEDS.

THE SEEDS present so great a diversity of appearance, that they cannot, like the CALYX, COROLLA, or PERICARP, be grouped into distinct assemblages, but must be presented to the reader individually, of which the following are some of the most striking examples.

1. A DOUBLE-SEED, EACH RESEMBLING A BOAT (*Semen duplex, naviculæ formam repræsentans*).
2. KIDNEY-SHAPED, WITH HEPTAGON AND PENTAGON CELLS (*Reniforme, cellulis pentagonis et heptagonis*).
3. OVATE (*Ovatum*), shaped like an egg.
4. GLOBULAR (*Globosum*).
5. SQUARE (*Tetragonum*), having four sides.
6. TRIANGULAR (*Triangulare*), having three sides.
7. CYLINDRIC (*Oblongum*), oblong.
8. RESEMBLING A PARTICULAR SHELL (*Figuram chonchæ mentiens*).
9. Ditto.
10. Ditto.
11. RESEMBLING THE HEAD OF A MONKEY (*Figuram cynocephali repræsentans*).
12. A SINGLE CROWN (*Corona simplex*).
13. A DOUBLE CROWN (*Corona duplex*).
14. A SHUTTLE-COCK (*Corona pennacea*).

BOTANICAL TERMS APPLICABLE TO THESE SEVERAL PARTS.

I. CALYX.

Peculiar (*Proprius*), belonging to a single flower.

Common (*Communis*), common to several flowers.

Beneath (*Inferus*), placed beneath the Germen.

Above (*Superus*), above the Germen.

Monophyllous (*Monophyllus*), consisting of one leaf.

Diphyllous (*Diphyllus*), of two leaves.

Triphyllous (*Triphyllus*), of three leaves.

Tetraphyllous (*Tetraphyllus*), of four leaves.

Pentaphyllous (*Pentaphyllus*), of five leaves and so on to

Polyphyllous (*Polyphyllus*), composed of many leaves.

Intire (*Integer*), having the border, or edge of the leaf even.

Toothed (*Dentatus*), cut into small teeth.

Partite (*Partitus*), divided into large segments.

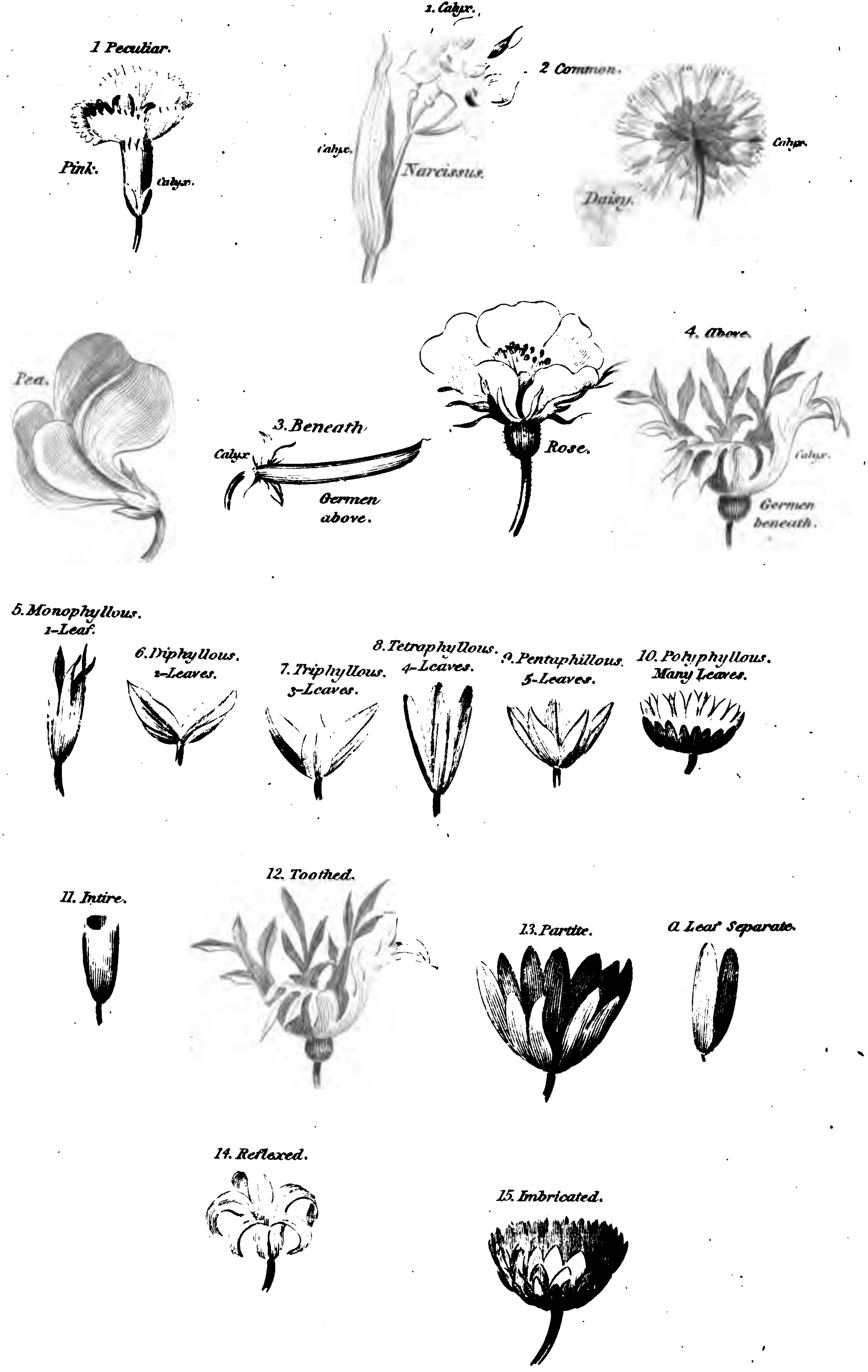
Reflexed (*Reflexus*), bent back.

Imbricated (*Imbricatus*), having the leaves placed over one another like the tiles of a house.

To face p. 20.

Botanical Terms.

Plate


1 Peculiar.
Pink.
Calyx.
1. Calyx.
Calyx.
Narcissus.
2 Common.
Calyx.
Daisy.
Pea.
3. Beneath
Calyx
Germen above.
Rose.
4. Above.
Calyx.
Germen beneath.
5. Monophyllous. 1-Leaf.
6. Diphyllous. 2-Leaves.
7. Triphyllous. 3-Leaves.
8. Tetraphyllous. 4-Leaves.
9. Pentaphillous. 5-Leaves.
10. Polyphyllous. Many Leaves.
11. Intire.
12. Toothed.
13. Partite.
a Leaf Separate.
14. Reflexed.
15. Imbricated.

Henderson del.

Cooper sculp.

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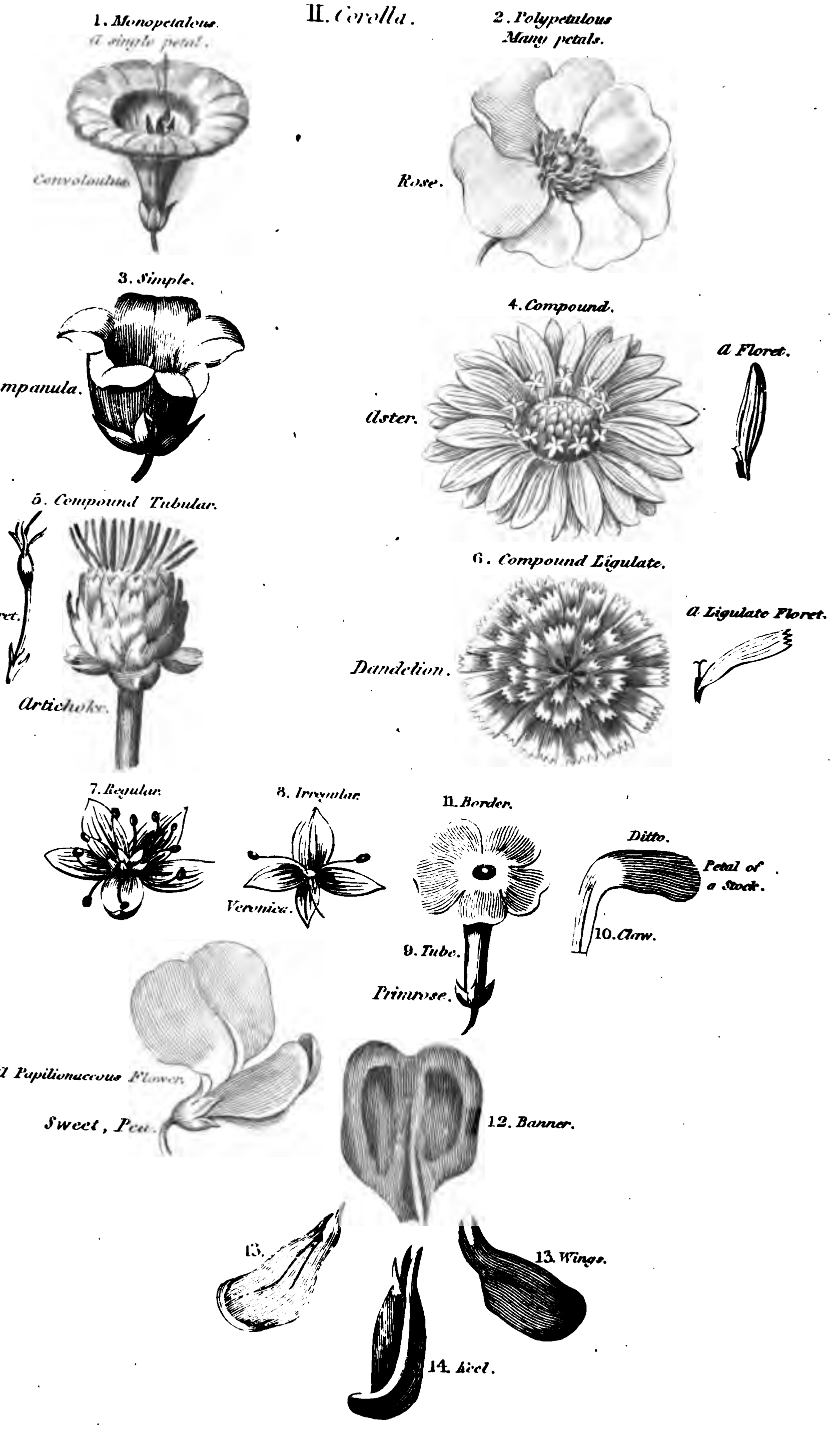
Plate 21. *To face p. 21.*

Botanical Terms.

II. *Corolla.*


1. Monopetalous.
A single petal.
Convolvulus.
2. Polypetalous
Many petals.
Rose.
3. Simple.
Campanula.
4. Compound.
Aster.
A Floret.
5. Compound Tubular.
A Tubular Floret.
Artichoke.
6. Compound Ligulate.
Dandelion.
A Ligulate Floret.
7. Regular.
8. Irregular.
Veronica.
11. Border.
Ditto.
Petal of a Stock.
10. Claw.
9. Tube.
Primrose.
A Papilionaceous Flower.
Sweet, Pea.
12. Banner.
13.
13. Wings.
14. Keel.

Henderson del.

London, Published as the Act directs, by [illegible]

II. COROLLA.

Monopetalous (*Monopetala*), composed of one petal only.

Polypetalous (*Polypetala*), composed of two or more petals.

Simple (*Simplex*), not a compound flower.

Compound (*Composita*), made up of distinct florets on a common receptacle.

Rayed (*Radiata*), having tubular florets in the *disk*, or centre, and ligulate in the *ray*, or circumference.

Tubular (*Tubularis*), having florets ending in a tube.

Ligulate (*Ligulata*), having the petal linear, like a strap.

Regular (*Regularis*), with all the parts proportionate.

Irregular (*Irregularis,*) having all the parts disproportionate.

Tube (*Tubus*), the inferior narrow hollow part of a monopetalous corolla.

Claw (*Unguis*), the inferior narrow flat part of a polypetalous corolla.

Border (*Lamina*), the upper flat part of a polypetalous corolla.

Banner (*Vexillum*), the upper part of a papilionaceous flower.

Wings (*Alæ*), the side petals of ditto.

Keel (*Carina*), the under petal, shaped like a boat, of ditto.

III. PERICARP.

VALVES (*Valvulæ*), the external pieces forming the sides of the seed-vessel.

SUTURES (*Suturæ*), the edges or margins, by which the valves are connected.

COLUMN (*Columella*), a central point of union of the partitions in the seed-vessels.

PARTITIONS (*Dissepimenta*), the divisions of the seed-vessel into cells.

CELLS (*Loculamenta*), hollow places for the reception of the seeds.

ONE-SEEDED (*Monospermus*).

TWO-SEEDED (*Dispermus*), and so on.

IV. SEED.

ARIL (*Arillus*), the outer coat of the seed.

EYE (*Hilum*), an oblong scar, marking the place where the seed was affixed by an umbilical cord to the seed-vessel.

HEART (*Corculum*), the rudiment of the young plant within the seed.

PLUME (*Plumula*), the ascending part of the corcule, or infant stem.

RADICLE (*Radicula*), the descending part, or infant root.

COTYLEDONS (*Cotyledones*), the side-lobes, furnishing nourishment to the corculum.

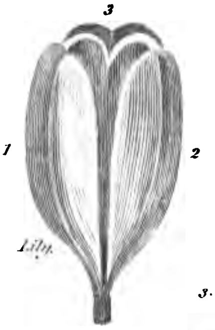
SEMINAL LEAVES (*Folia Seminalia*), the first leaves of the plantule, serving the office of cotyledons or lobes.

PAPPUS (*Pappus*), a feathery crown.

STIPE (*Stipes*), a thread connecting the pappus to the seed.

Botanical Terms.

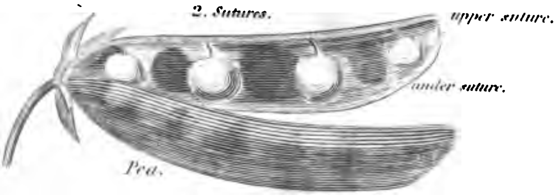
I. Valves.



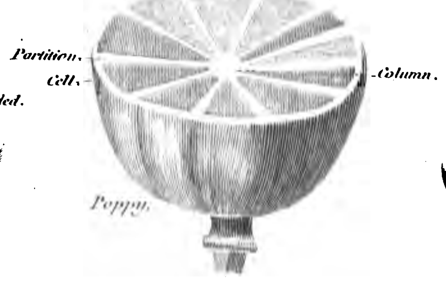
1. 2. 3. the three valves.

III. Pericarp.

2. Sutures.


upper suture.
under suture.
Pea.

3. 4. 5. Columns Partitions & Cells.

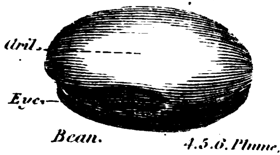


6. One-seeded.

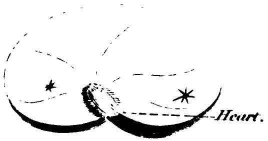
7. Two-seeded.

IV Seed.

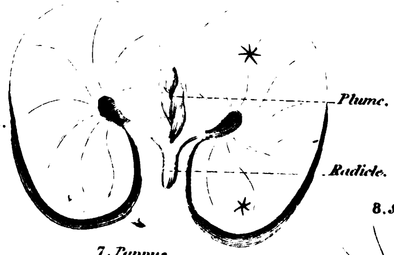
1. 2. Aril & Eye.



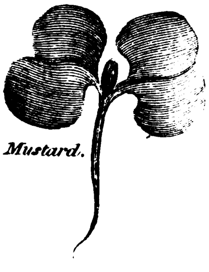
3. Heart.



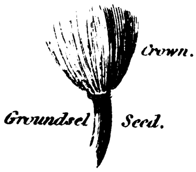
4. 5. 6. Plume, Radicle & Cotyledons.



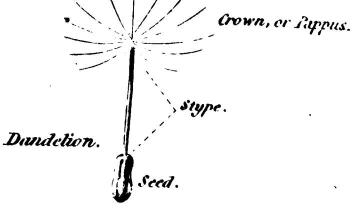
6. Seminal Leaves.



7. Pappus.



8. Stype.



Henderson del.

Cooper sculp.

London, Published as the Act directs, by Dr. Thornton, Jan. 1, 1811.

THE

Sexual System

OF

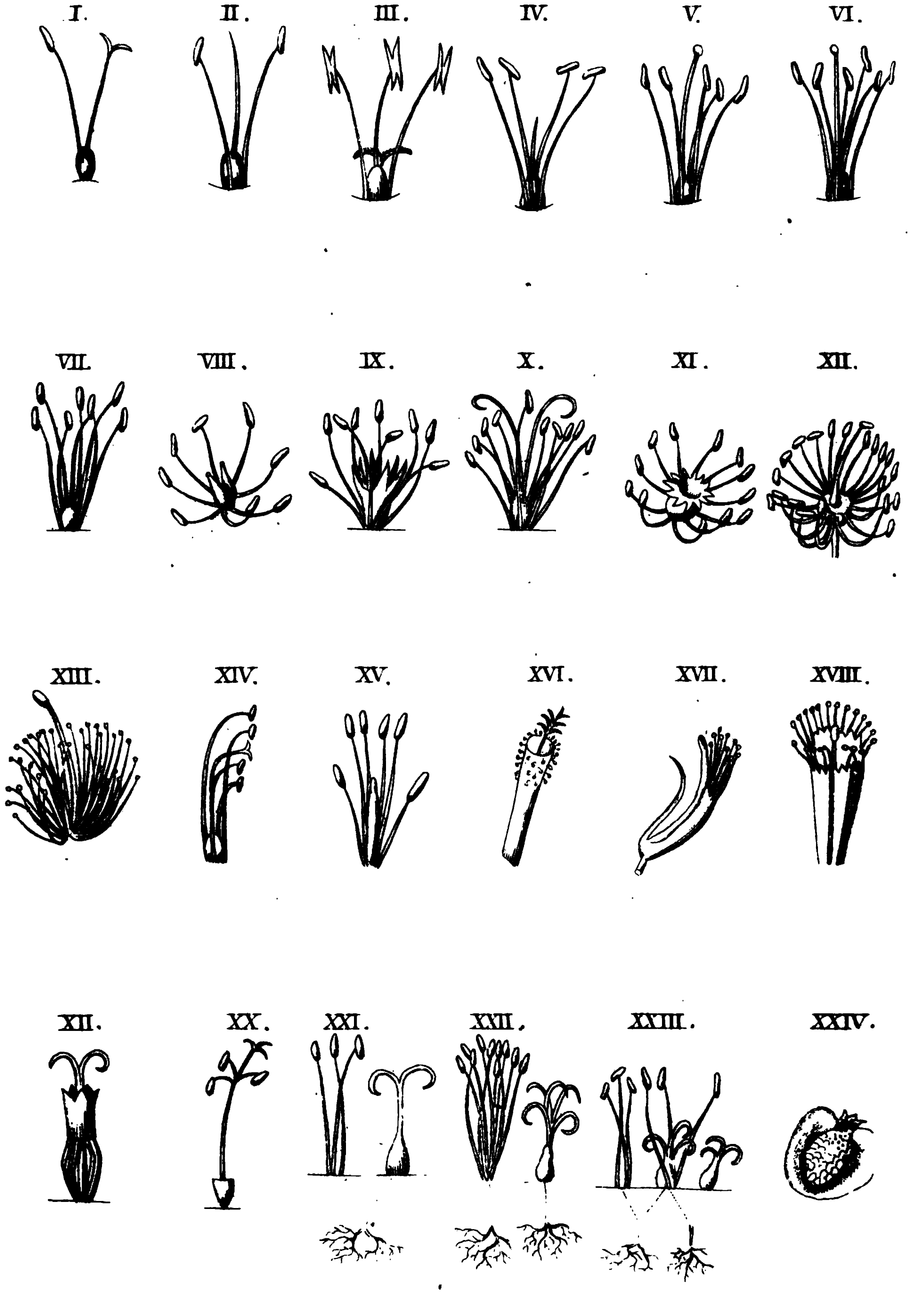
CAROLUS VON LINNÆUS.

" Nisi vegetabilia in classes et ordines suas redigantur, et velut castrorum acies distribuantur, omnia fluctuari necesse est."

CÆSALPINUS.

The Sexual System, as found in the Works of Linnaeus.

CLASSES



London. Published by Dr. Thornton October 1811.

EXPLANATION OF THE ANALYSIS

OF THE

SEXUAL SYSTEM

OF

CAROLUS VON LINNÆUS.

THE method of ANALYSIS is called by *Logicians*, THAT OF INVENTION, for it is the mode by which knowledge is acquired, and shews the progressive steps by which we advance in the acquisition of *complex ideas.* Here we are taught to *compare,* to *reason,* to *determine,* to *adopt,* and *separate;* and, finally, in this way we arrive at certain conclusions, or *truth.* It is a mode admirably calculated for the exercise and strengthening of our reasoning powers, being the very same method also as that pursued by *Mathematicians.*

Thus then is the *systematic study of Botany* one of the best books of logic, or reasoning, in the world: or as some persons might wish to degrade it, a *manly sort* of PUZZLE, but surely as *instructive* as it is *amusing!*

A person who is in the pursuit of the CLASS and ORDER of any *unknown flower* may be said to be upon a BOTANICAL JOURNEY, and the plant being his *Directory,* if he can read the Botanical Characters impressed on it by the hand of Nature, he will certainly, following *System,* very soon arrive at his journey's end. —(*Vide our Plate of Analysis.*)

In our first start we hare two '*Comparisons*' to make.

I. Whether the Sexes are "VISIBLE," or
II. Whether the Sexes are "INVISIBLE."

That is, *whether* the *naked eye* can *discern* the *Pistillum* and *Stamina*, or *not.*

If "THE SEXES ARE NOT VISIBLE," he has already reached the object of his destination, the plant whose fructification he holds in his hand, comes under CLASS XXIV. "CRYPTOGAMIA" of Linnæus.

"If on the reverse, "THE SEXES WERE VISIBLE,"—that is, the *Stamina* and *Pistilla* apparent to sight—he has now three *Comparisons* to make, which may be called the "*second stage*" of his Journey. He has carefully to examine,

I. Whether the flowers are "BISSEXUAL,"
II. Whether the flowers are "UNISEXUAL," or
III. Whether the flowers are "MIXED."

By 'BISSEXUAL' plants are understood such, whose *flowers* have their *Stamina* and *Pistilla* (the *male* and *female parts* of *Plants*) inclosed within the *same corolla.*

By "UNISEXUAL," such as produce *flowers* with the *Stamina* and *Pistilla* placed in *different corollas.*

And by "MIXED," is to be understood a *mixture* of the *two kinds of flowers*, "BISSEXUAL," and "UNISEXUAL."

Having made the necessary examination, if the Sexes are "MIXED," he is at once arrived at his journey's end, his plant is in CLASS XXIII. POLYGAMIA.

If "UNISEXUAL," he has one of two roads to take,

I. The two Sexes are either "ON THE SAME PLANT," or

II. The two Sexes are "ON DIFFERENT PLANTS."

That is, STAMEN-BEARING flowers (*male* flowers) and PISTIL-BEARING flowers, (*female* flowers) are in the former instance to be found on the *same* plant, produced from the *same* root,—and in the latter case, the correspondent *male* and *female* flowers, are found on *different* plants, produced on *different* roots.

His plant being as the directing post, he reads the botanical inscription, and discovers his plant to come either under the CLASS XXII. "DIŒCIA," or CLASS XXI. "MONŒCIA."

But if the flower was BISSEXUAL, he has another course to take, and he has to see,

I. Whether the "ANTHERS" are "SEPARATE," or

II. Whether the "ANTHERS" are "UNITED."

If he finds five "ANTHERS UNITED" round the *Pistillum*, he has reached the object of his destination, namely CLASS XXII. "SYNGENESIA."

If the "ANTHERS" were "SEPARATE," he has to advance a "*fourth stage*," and to see,

I. Whether the "FILAMENTS" are "SEPARATE," or

II. Whether the "FILAMENTS" are "UNITED WITH EACH OTHER," or

III. Whether the "FILAMENTS," are "UNITED WITH THE PISTILLUM."

If the *Filaments arise* from *any part* of the *Pistillum*, or from a *pedicel* (column) *elevating* the *Pis-*

tillum, the plant is then of CLASS XIX. " GYNANDRIA."

If the " FILAMENTS ARE UNITED WITH EACH OTHER," (these being joined together at bottom as a membrane), they are either,

I. All of them united, " FORMING ONE BODY," or
II. Divided into " TWO PARCELS," making two bodies, or,
III. Divided into " THREE, OR MORE PARCELS," each parcel being united.

If UNITED TOGETHER, but forming " THREE OR MORE PARCELS," the flower falls under CLASS XVIII. " POLYADELPHIA,"—if forming " TWO BODIES," under CLASS XVII. " DIADELPHIA," and if only " ONE BODY," under CLASS XVI. " MONODELPHIA."

But if the " FILAMENTS" were " SEPARATE," he has to examine,

I. Whether these are " PROPORTIONABLY LONG," or,
II. Whether these are of " DIFFERENT LENGTHS."

Of DIFFERENT LENGTHS relate only to four or six stamina.—If his flower has " SIX STAMINA," and of these he finds, " FOUR LONG and TWO SHORT," he has reached his destination. CLASS XV. " TETRADYNAMIA,"—if " FOUR STAMINA," " TWO" of these " BEING LONG" and " TWO SHORT," he discovers his plant to be of the CLASS XIV. " DIDYNAMIA."

If his flower falls under none of the former considerations, he has an easy task now assigned him, only to count "NUMBERS;" but if these amount to "TWENTY OR MORE STAMINA," he has also to attend to "*insertion.*"

I. Whether "INSERTED ON THE CALYX OR COROLLA," OR,
II. Whether "INSERTED ON THE RECEPTACLE."

If "INSERTED ON THE RECEPTACLE," the CLASS is XIII. "POLYANDRIA,"—and if on the calyx or corolla, CLASS XII. "ICOSANDRIA."

The other comparisons are equally easy, as—

CLASS XI.	"DODECANDRIA, TWELVE TO NINETEEN STAMINA."
CLASS X.	"DECANDRIA, TEN STAMINA."
CLASS IX.	"ENNEANDRIA, NINE STAMINA."
CLASS VIII.	"OCTANDRIA, EIGHT STAMINA."
CLASS VII.	"HEPTANDRIA, SEVEN STAMINA."
CLASS VI.	"HEXANDRIA, SIX STAMINA."
CLASS V.	"PENTANDRIA, FIVE STAMINA."
CLASS IV.	"TETRANDRIA, FOUR STAMINA."
CLASS III.	"TRIANDRIA, THREE STAMINA."
CLASS II.	"DIANDRIA, TWO STAMINA."
CLASS I.	"MONANDRIA, ONE STAMEN."

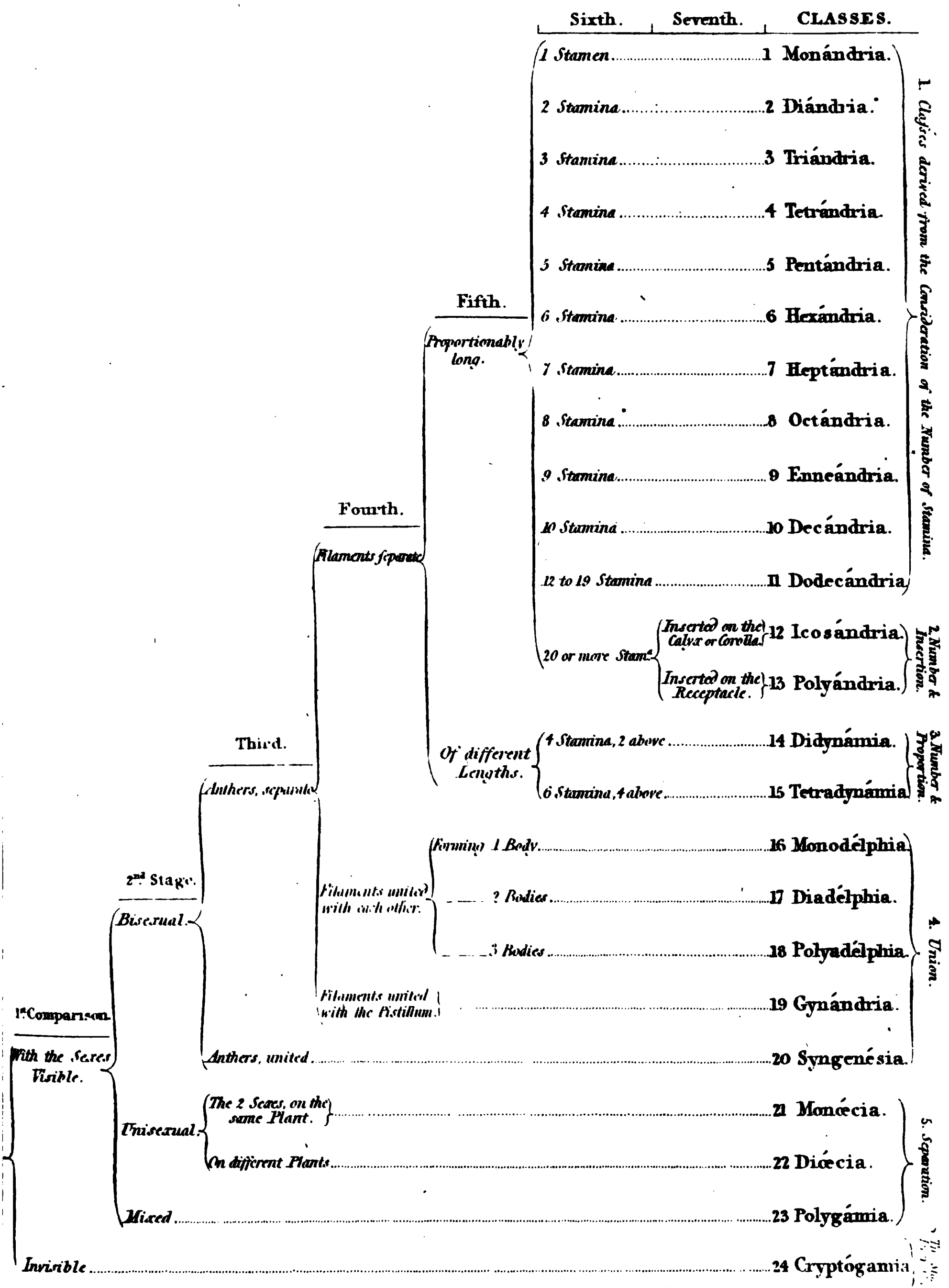
An APPENDIX has been added to this System by Linnæus including PALMS, which are now distributed into their respective classes.

TABLE OF ANALYSIS

OF THE

SEXUAL SYSTEM.

THE SEXUAL SYSTEM OF LINNÆUS.


Sixth.
Seventh.
CLASSES.
1 Stamen .... 1 Monándria.
2 Stamina .... 2 Diándria.
3 Stamina .... 3 Triándria.
4 Stamina .... 4 Tetrándria.
5 Stamina .... 5 Pentándria.
6 Stamina .... 6 Hexándria.
7 Stamina .... 7 Heptándria.
8 Stamina .... 8 Octándria.
9 Stamina .... 9 Enneándria.
10 Stamina .... 10 Decándria.
12 to 19 Stamina .... 11 Dodecándria
20 or more Stamª
Inserted on the Calyx or Corolla. 12 Icosándria.
Inserted on the Receptacle. 13 Polyándria.
1. Classes derived from the Consideration of the Number of Stamina.
2. Number & Insertion.
Fifth.
Proportionably long.
Of different Lengths.
4 Stamina, 2 above .... 14 Didynámia.
6 Stamina, 4 above .... 15 Tetradynámia
3. Number & Proportion.
Fourth.
Filaments separate
Filaments united with each other.
Forming 1 Body .... 16 Monodélphia.
2 Bodies .... 17 Diadélphia.
3 Bodies .... 18 Polyadélphia.
Filaments united with the Pistillum. .... 19 Gynándria.
Third.
Anthers, separate
Anthers, united .... 20 Syngenésia.
4. Union.
2nd Stage.
Bisexual.
Unisexual.
The 2 Sexes, on the same Plant. .... 21 Monœcia.
On different Plants .... 22 Diœcia.
Mixed .... 23 Polygámia.
5. Separation.
1st Comparison.
With the Sexes Visible.
Invisible .... 24 Cryptogamia

Benjⁿ Danes sculp

London, Published by Dʳ Thornton, 1812.

Class 1.

MONANDRIA.

One Stamen

Girtin sc! Charles Str! Soho Sq.

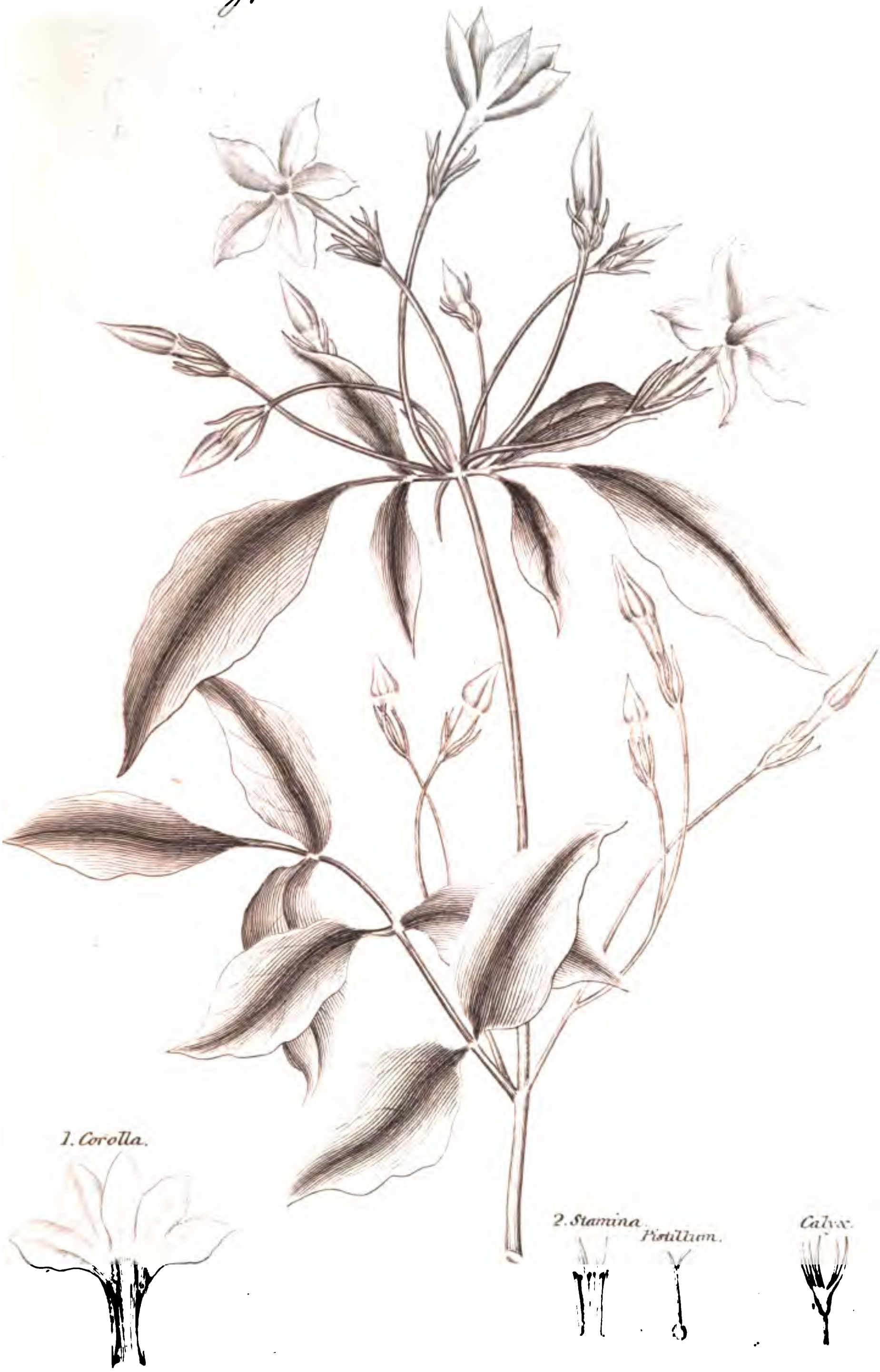
Claſs 2,

DIANDRIA.

Two Stamina

Cirtin

Iasminum officinale, or common white Iasmine.

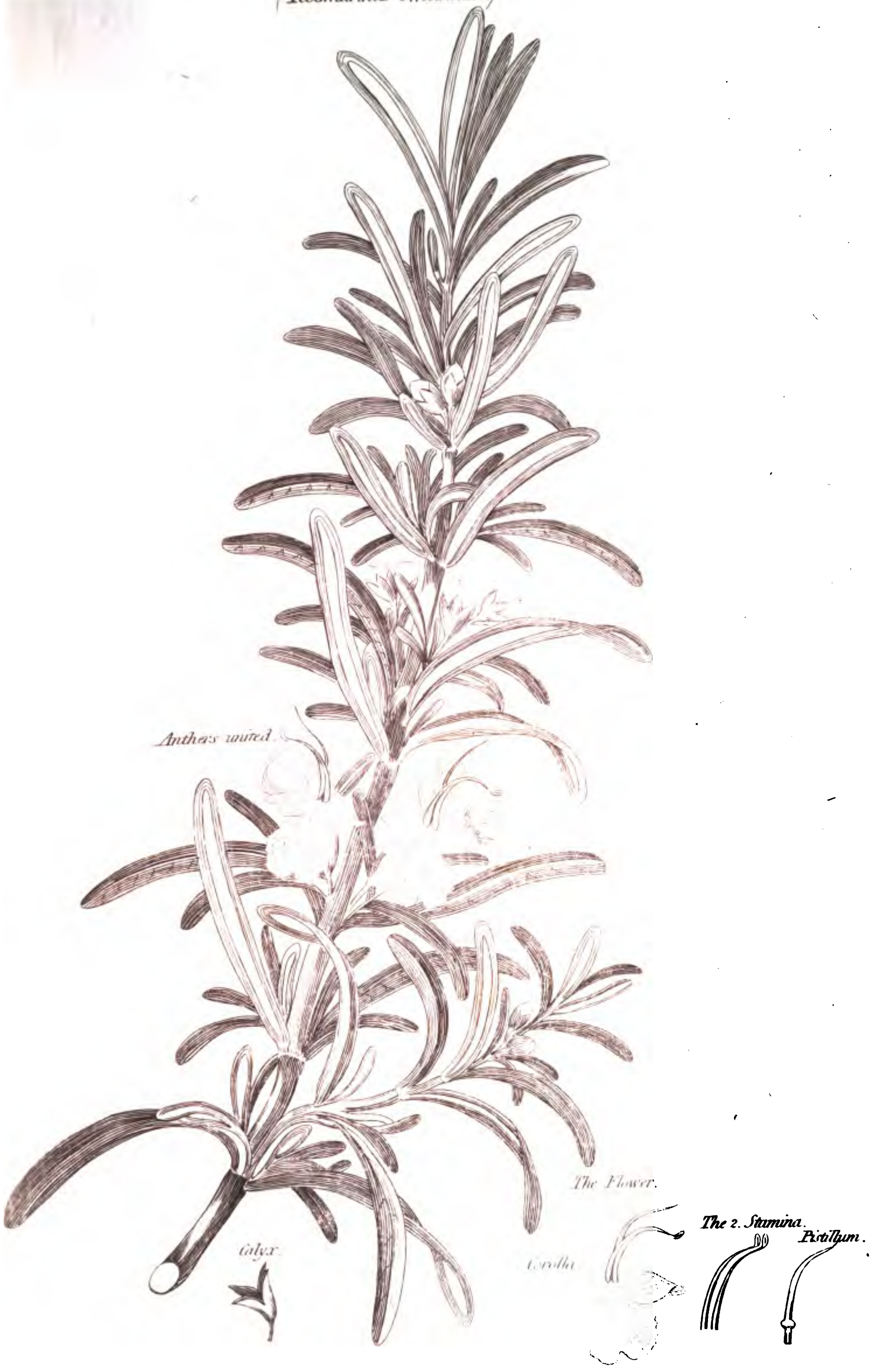

1. Corolla.
2. Stamina.
Pistillum.
Calyx.

London, Published for Dr. Thornton. Jany. 1. 1812.

Henderson del. *Eves sculp.*

COMMON ROSEMARY.

(*Rosmarinus Officinalis.*)


Anthers united.
Calyx.
The Flower.
Corolla.
The 2. Stamina.
Pistillum.

A Plant from the South of Europe.

(Of Claſs II. Diandria: Order I. Monogynia, of Linnæus.)

Miller del.^{t} Madan ſculp.

London, Publiſh'd by D^r Thornton, Jan.1,1812.

Claſs 3.

TRIANDRIA.

Three Stamina

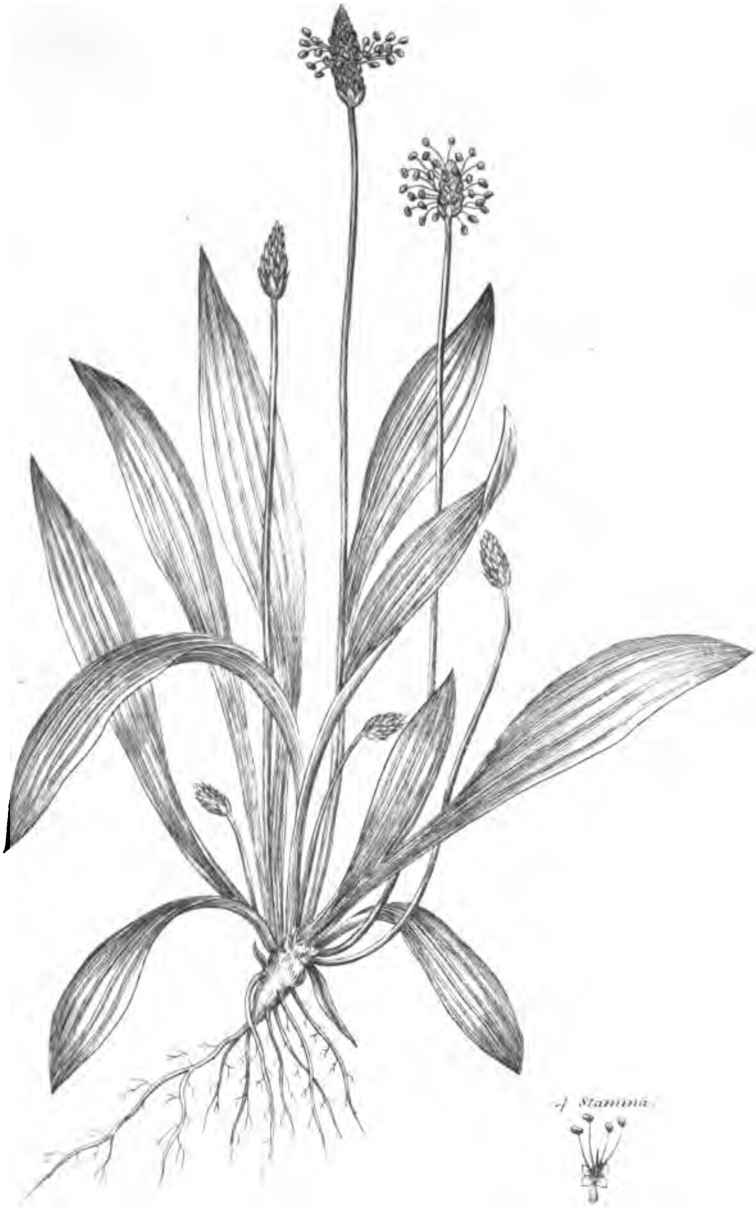
Curtis sc!

Claſs 4.

TETRANDRIA.

Four Stamina.

Plantago lanceolata, or Ribwort Plantain.



Henderson sculp   Ever sculp

London Published by Dr. Thornton Jany 1.1812.

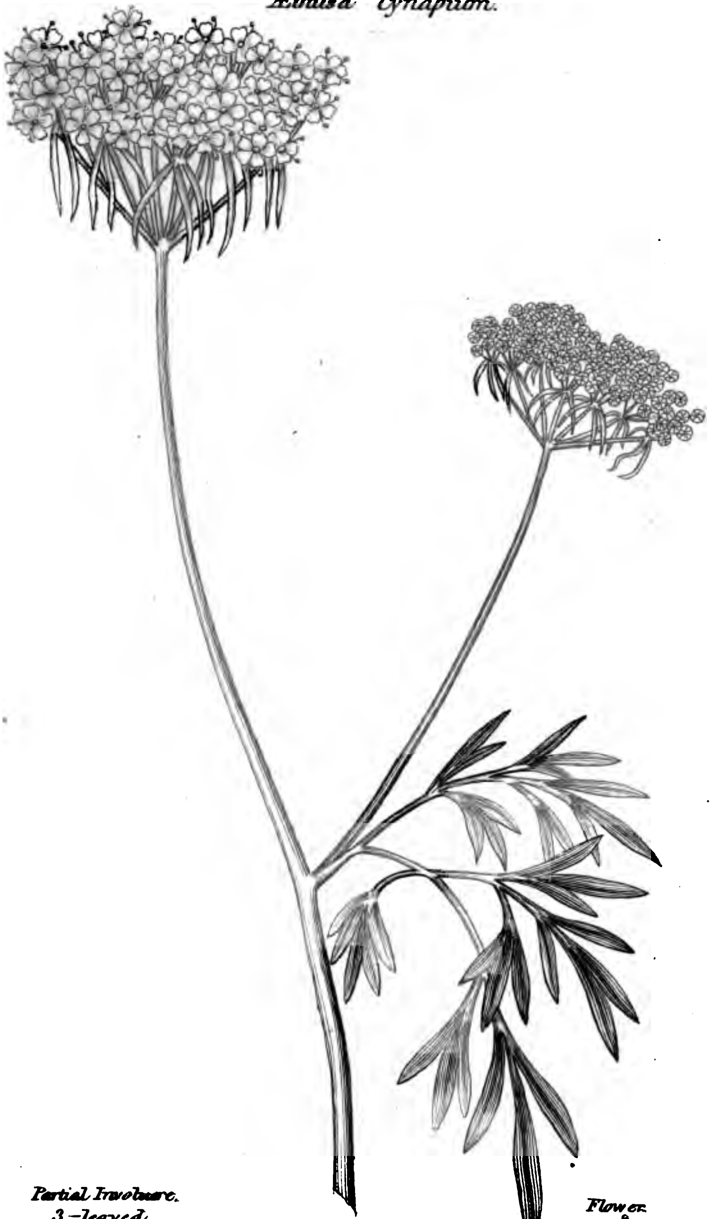
Claſs 5.

PENTANDRIA.

Five Stamina

Fool's Parsley.

Æthusa Cynapium.



Partial Involucre.
3-leaved.

Pistilla.

Flower.

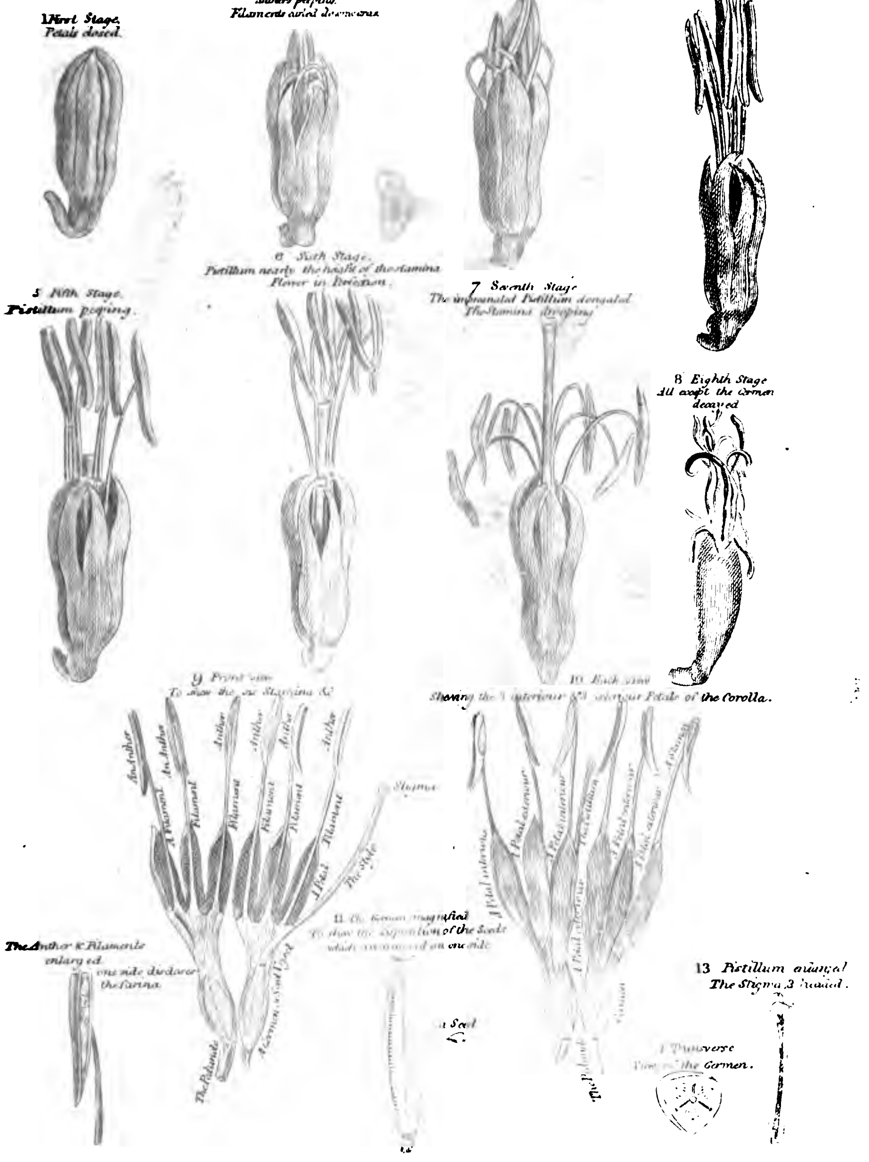
London, Published for Dr. Thornton. Jany. 1. 1812.

Claſs 6.

HEXANDRIA.

Six Stamina

Anatomy of the Agave, or American Aloe



Reinagle & Pether del.

London Published by Dr. Thornton, Sept. 2 1811.

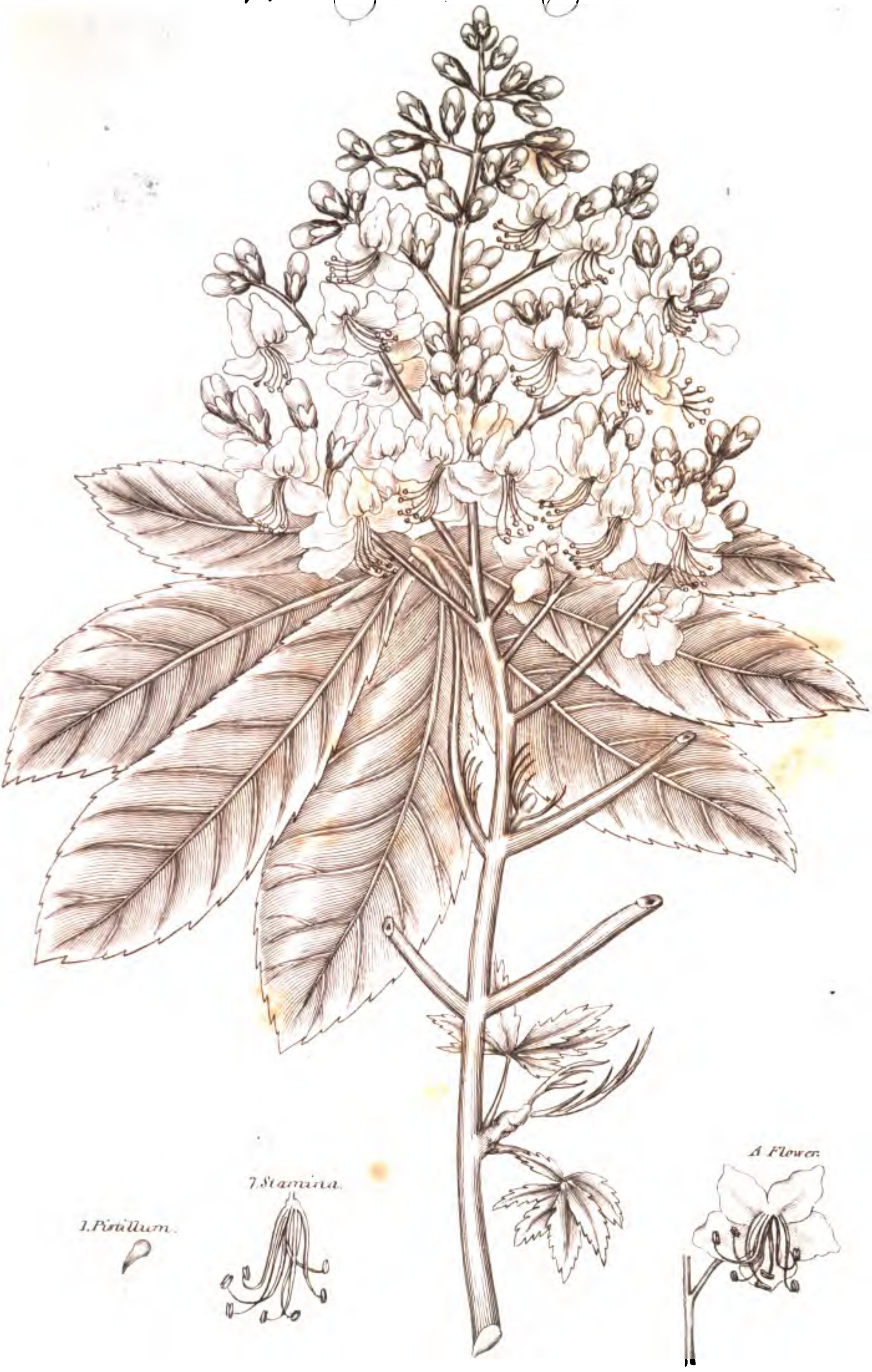
Smart sc.

Claſs 7.

HEPTANDRIA.

Seven Stamina

2 Æsculus Hippo-Castanum or Common Horse-Chesnut.


1. Pistillum.
7. Stamina.
A Flower.

London. Published by Dr. Thornton. Oct. 1. 1811.

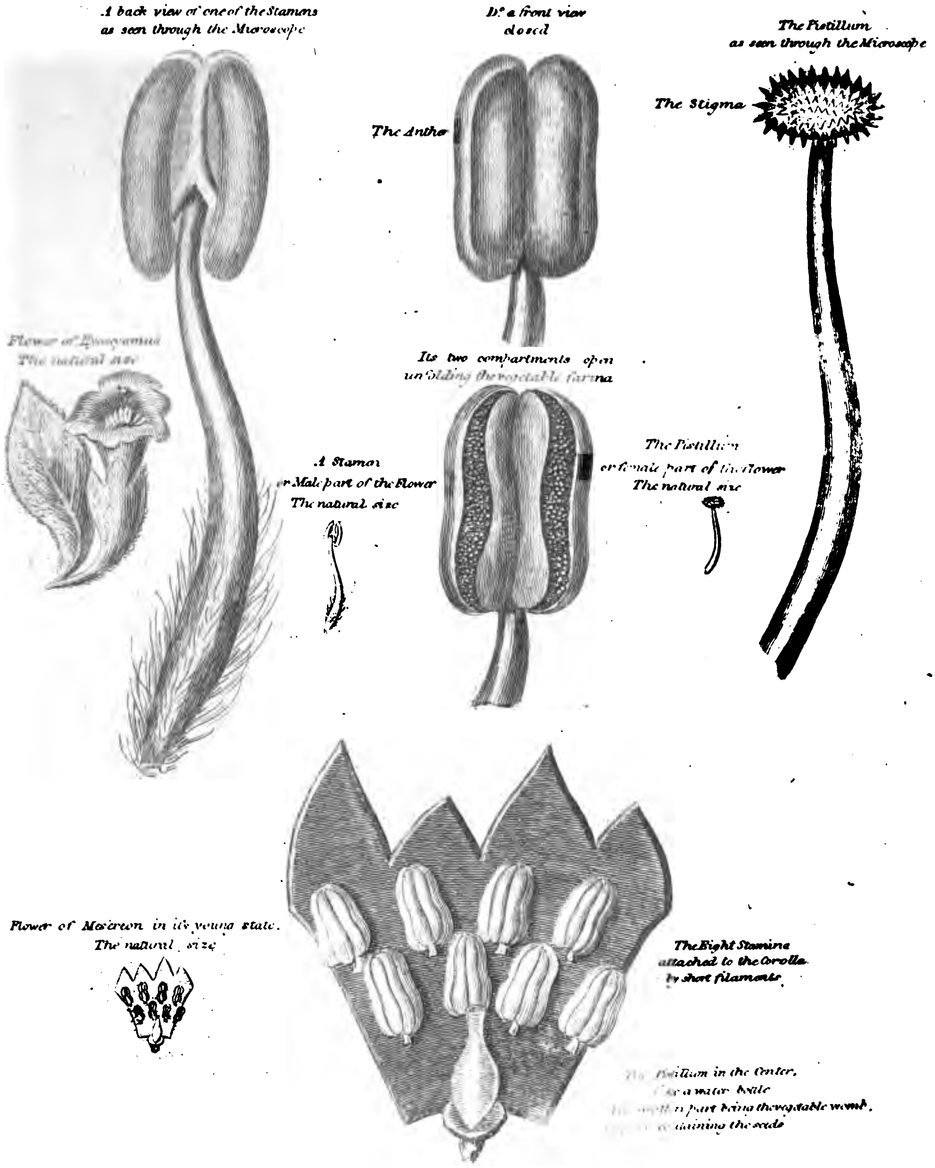
Claſs 8.

OCTANDRIA

Eight Stamina

Girtin sc^{t}

A Plate from Grew's Anatomy of Plants
published in 1682.


A back view of one of the Stamens
as seen through the Microscope
Do a front view
closed
The Pistillum
as seen through the Microscope
The Stigma
The Anther
Flower of Hyoscyamus
The natural size
Its two compartments open
unfolding the vegetable farina
A Stamen
or Male part of the Flower
The natural size
The Pistillum
or female part of the Flower
The natural size
Flower of Mezereon in its young state.
The natural size
The Eight Stamina
attached to the Corolla
by short filaments
The Pistillum in the Center,
like a water bottle
the swollen part being the vegetable womb,
containing the seeds

Grew del

Smart sculp.

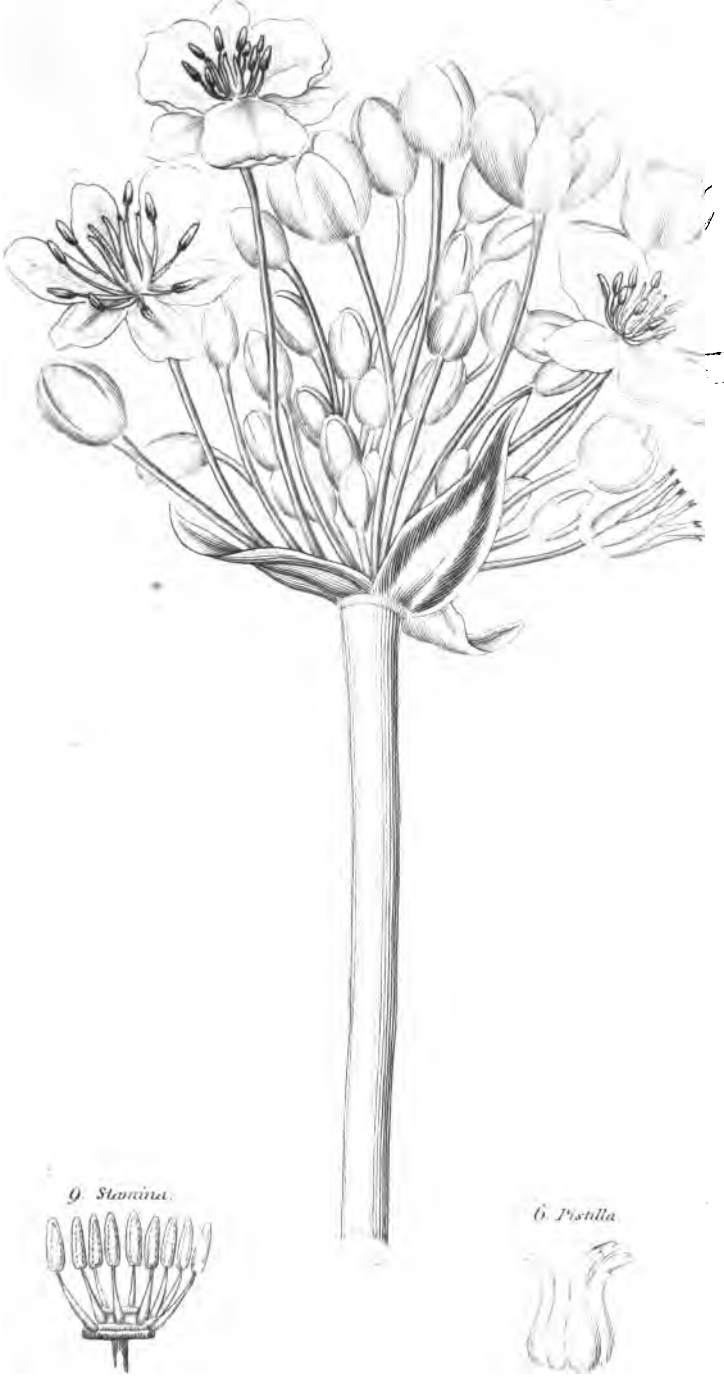
London. Published by Dr Thornton July, 1811.

Claſs 9.

ENNEANDRIA.

Nine Stamina

Butomus umbellatus, or Flowering Rush.


9. Stamina.
6. Pistilla.

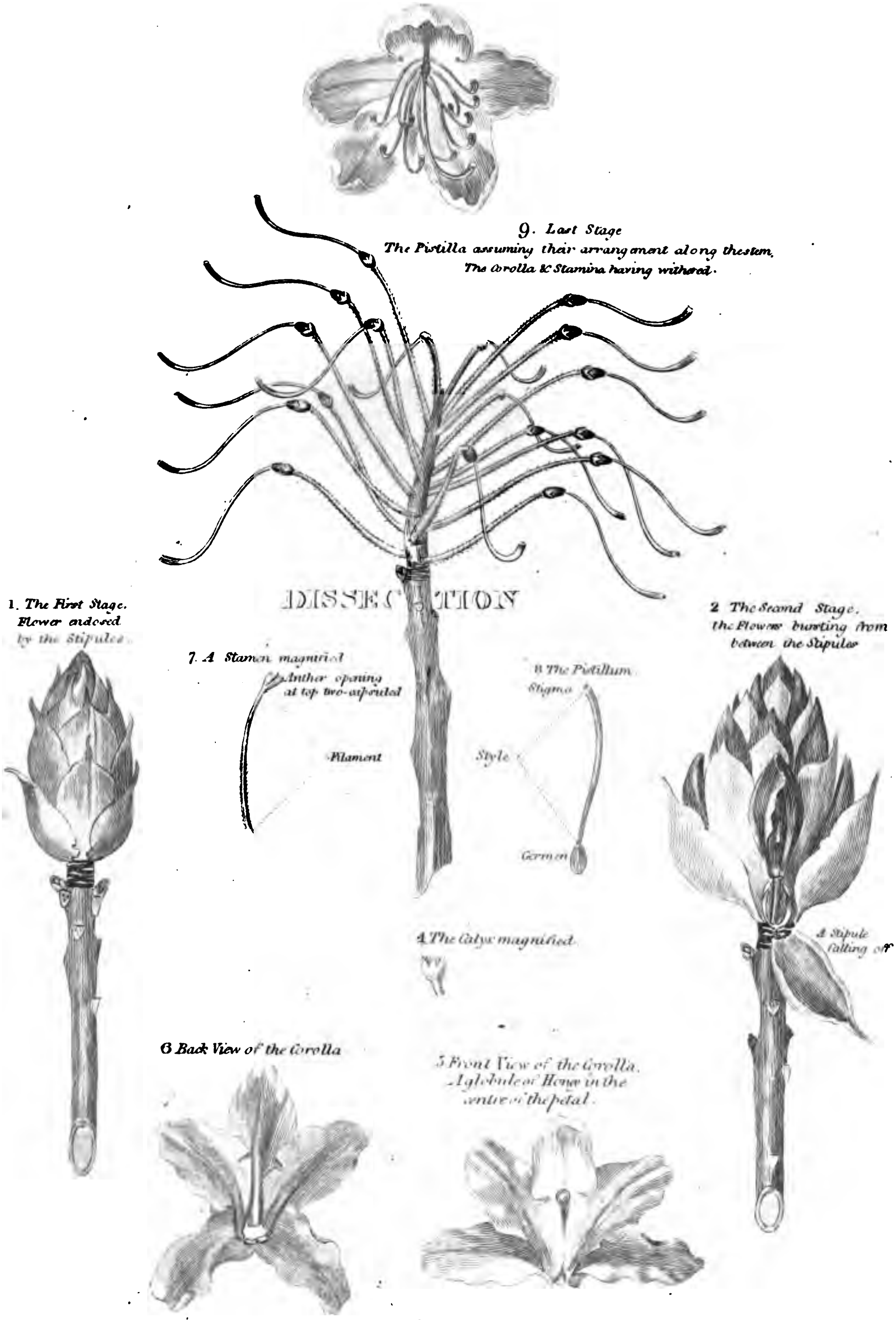
London, Published for Dr. Thornton, Jany. 1. 1812.

Henderson del. Warner sculp.

Claſs 10.

DECANDRIA.

Ten Stamina



3. Third Stage
An expanded Flower as seen in front

9. Last Stage
The Pistilla assuming their arrangement along the stem.
The Corolla & Stamina having withered.

DISSECTION

1. The First Stage.
Flower enclosed
by the Stipules.

7. A Stamen magnified
Anther opening
at top two-aspiculal
Filament

8 The Pistillum
Stigma
Style
Germen

2 The Second Stage,
the Flowers bursting from
between the Stipules

A Stipule
falling off

4 The Calyx magnified

6 Back View of the Corolla

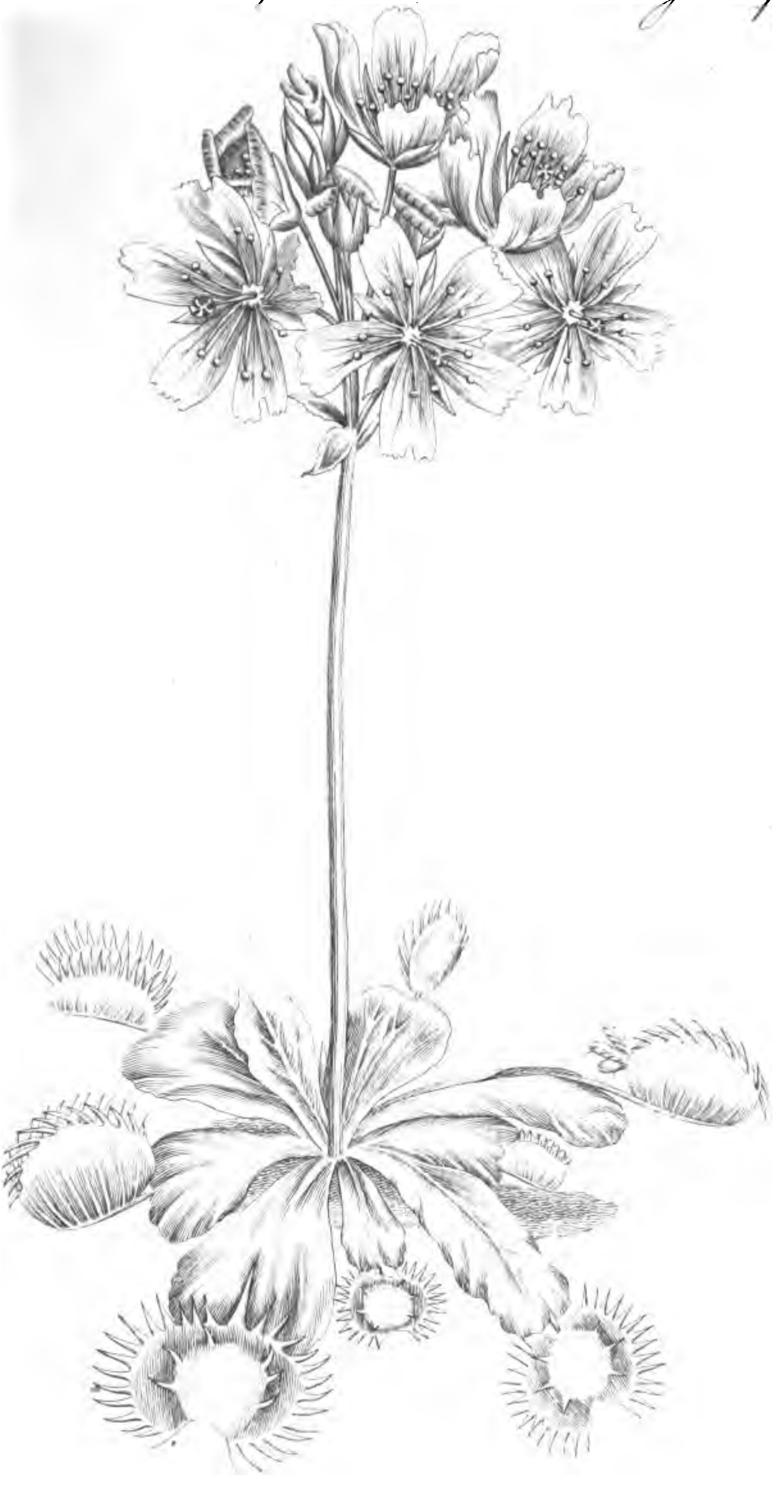
5 Front View of the Corolla,
A globule of Honey in the
centre of the petal.

Anatomy of the Pontic Rhododendron.

Henderson del.

Smart sculp.

Dionæa Muscipular, or Venus's Fly-trap.

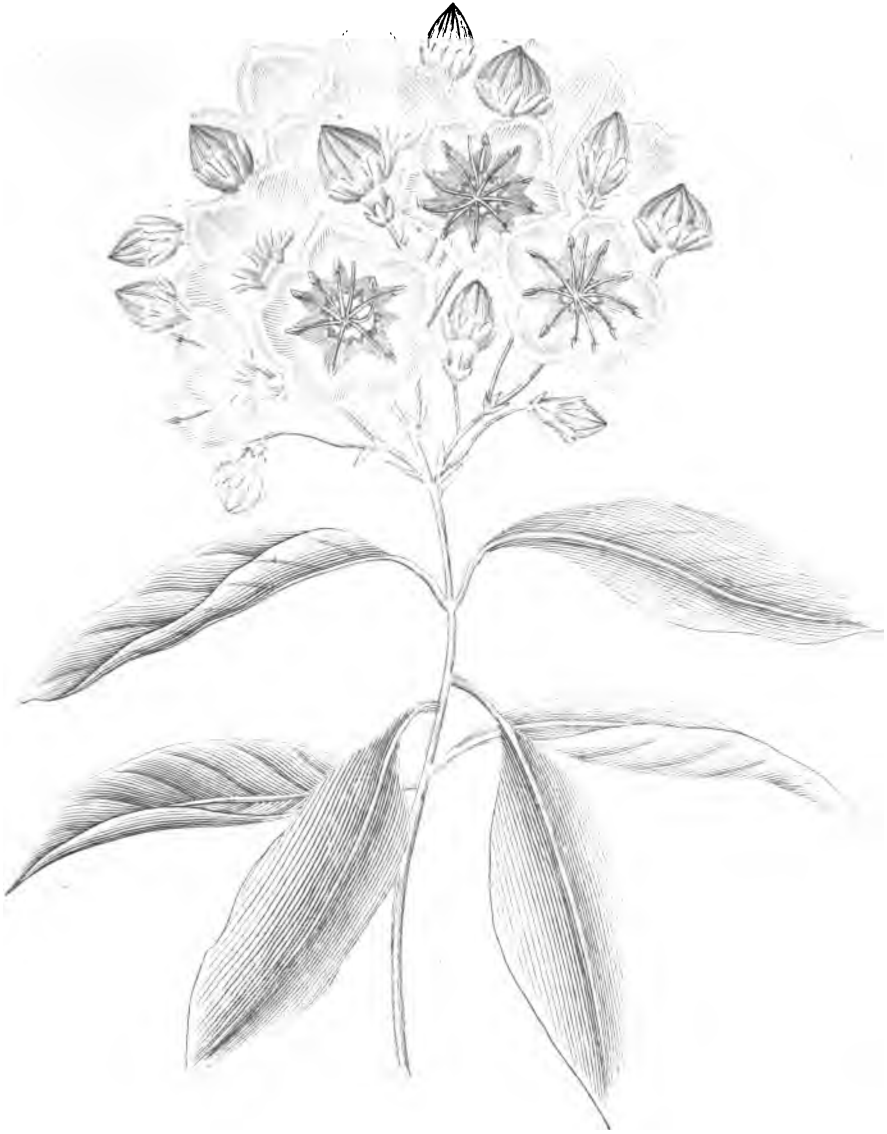


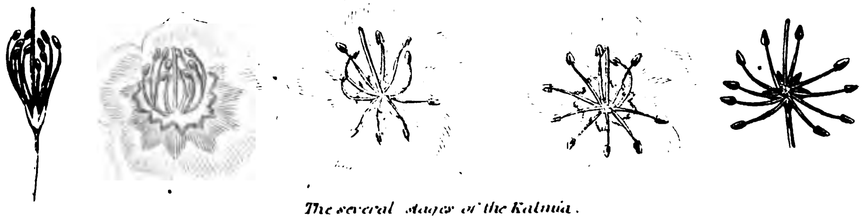
Henderson del.

Eves sculp.

London, Published for D^{r} Thornton, Jan^{y} 1, 1812.

Kalmia latifolia, or Broad-leav'd Kalmia.





The several stages of the Kalmia.

Henderson del

Ever sculp

London. Published for Dr. Thornton Jan.y 1.st 1812.

Claſs 11.

DODECANDRIA.

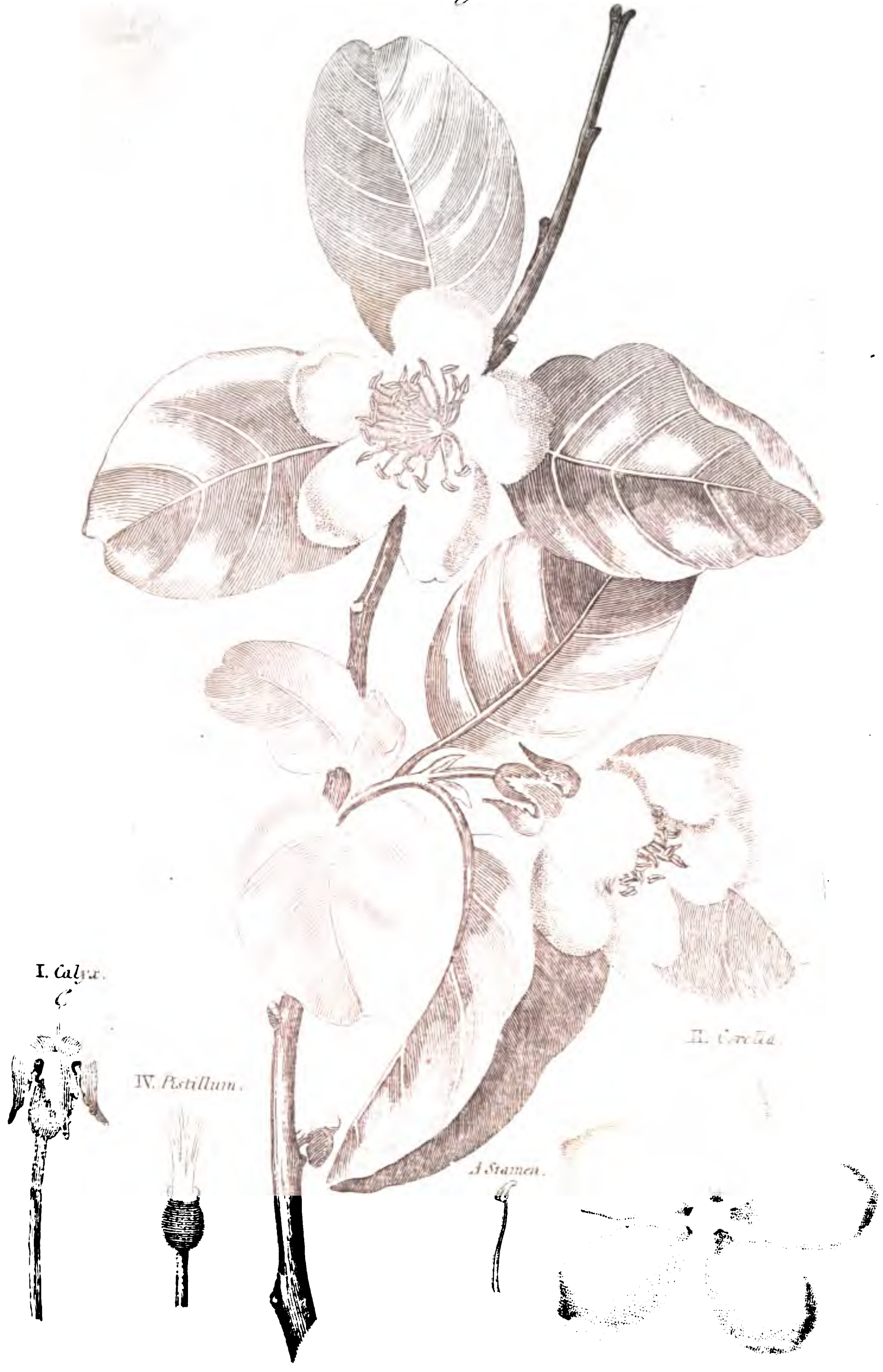
Twelve Stamina.

Claſs 12.

ISOCANDRIA.

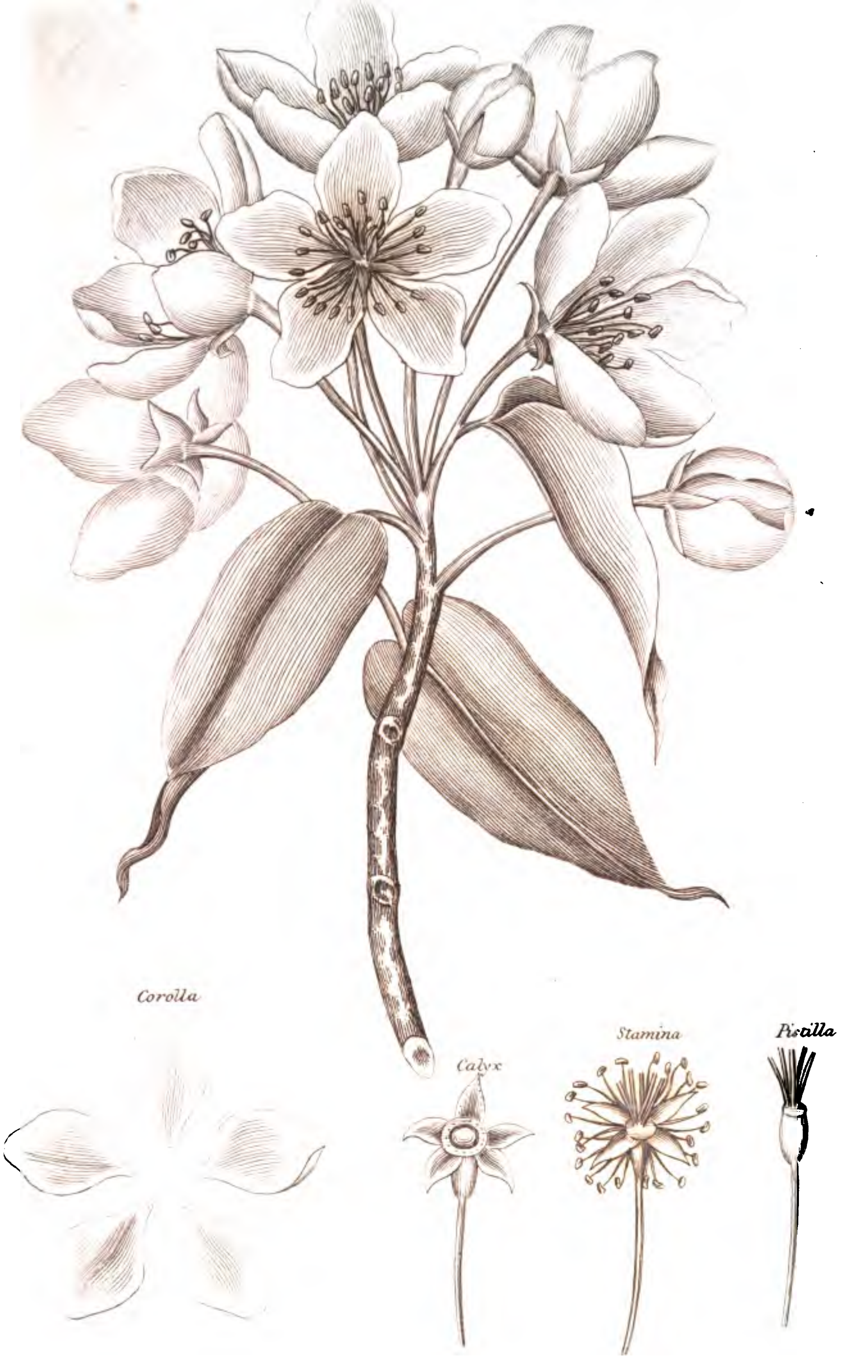
Twenty or more Stamina
inserted on the Calyx or Corolla

Pear Blossom.


I. Calyx.
IV. Pistillum.
II. Corolla.
A Stamen.

London. Published by W. Thornton. Jan. 1.1812.

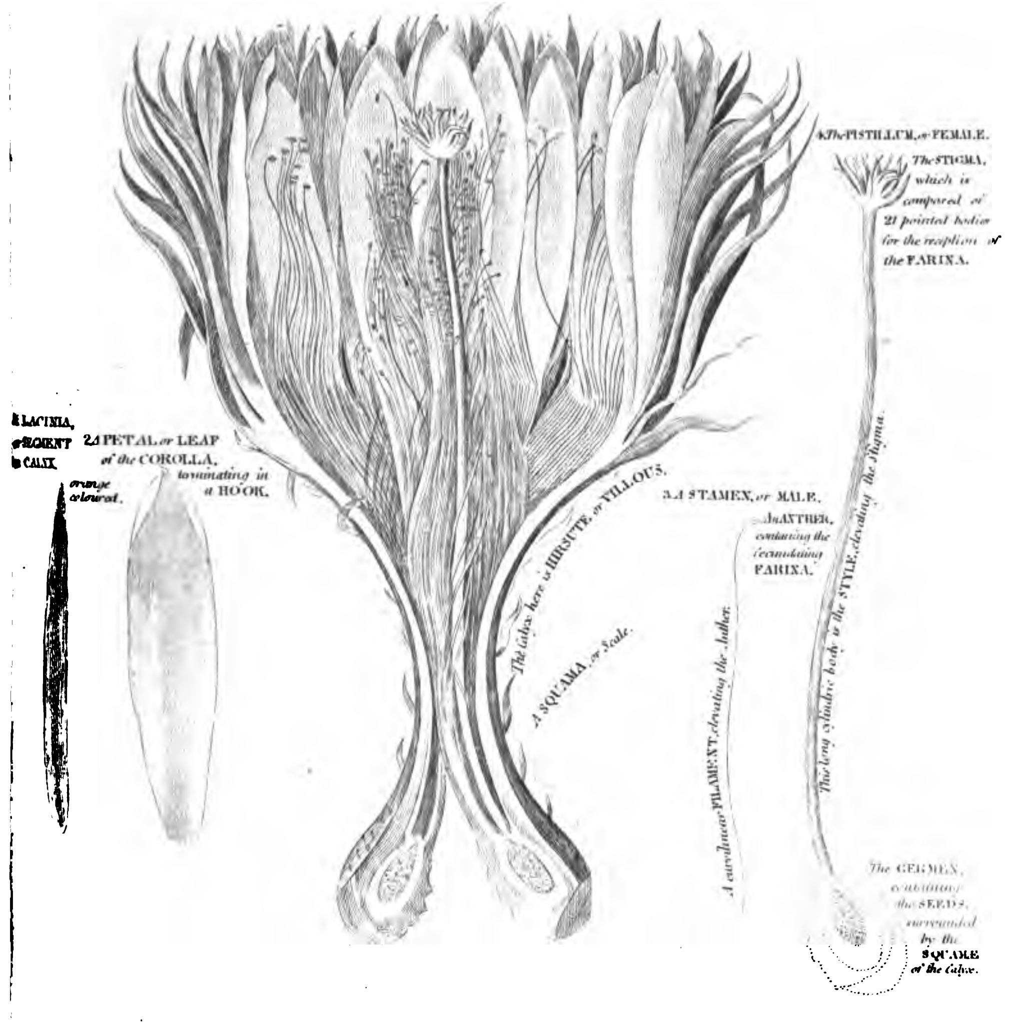
Pyrus Malus, or Pear Bloſsom.



London Published for Dr. Thornton Jan.y 1 1812.

Henderson del. Eves sculp.

Anatomy of the Night blowing Cereus, or Cactus Grandiflora of Linnæus.


1. LACINIA, or SEGMENT of the CALYX
orange coloured.
2. A PETAL or LEAF of the COROLLA, terminating in a HOOK.
The Calyx here is HIRSUTE, or VILLOUS.
A SQUAMA, or Scale.
3. A STAMEN, or MALE.
An ANTHER, containing the fecundating FARINA.
A curvilinear FILAMENT, elevating the Anther.
4. The PISTILLUM, or FEMALE.
The STIGMA, which is composed of 21 pointed bodies for the reception of the FARINA.
This long cylindric body is the STYLE, elevating the Stigma.
The GERMEN, containing the SEEDS, surrounded by the SQUAMÆ of the Calyx.

Reinagle pinx.

Smart sculp.

London Published by Dr Thornton Sept 2. 1811.

Claſs 13.

POLYANDRIA.

Many Stamina

inserted on the Receptacle.

Girtin sculp.^t

Claſs 14.

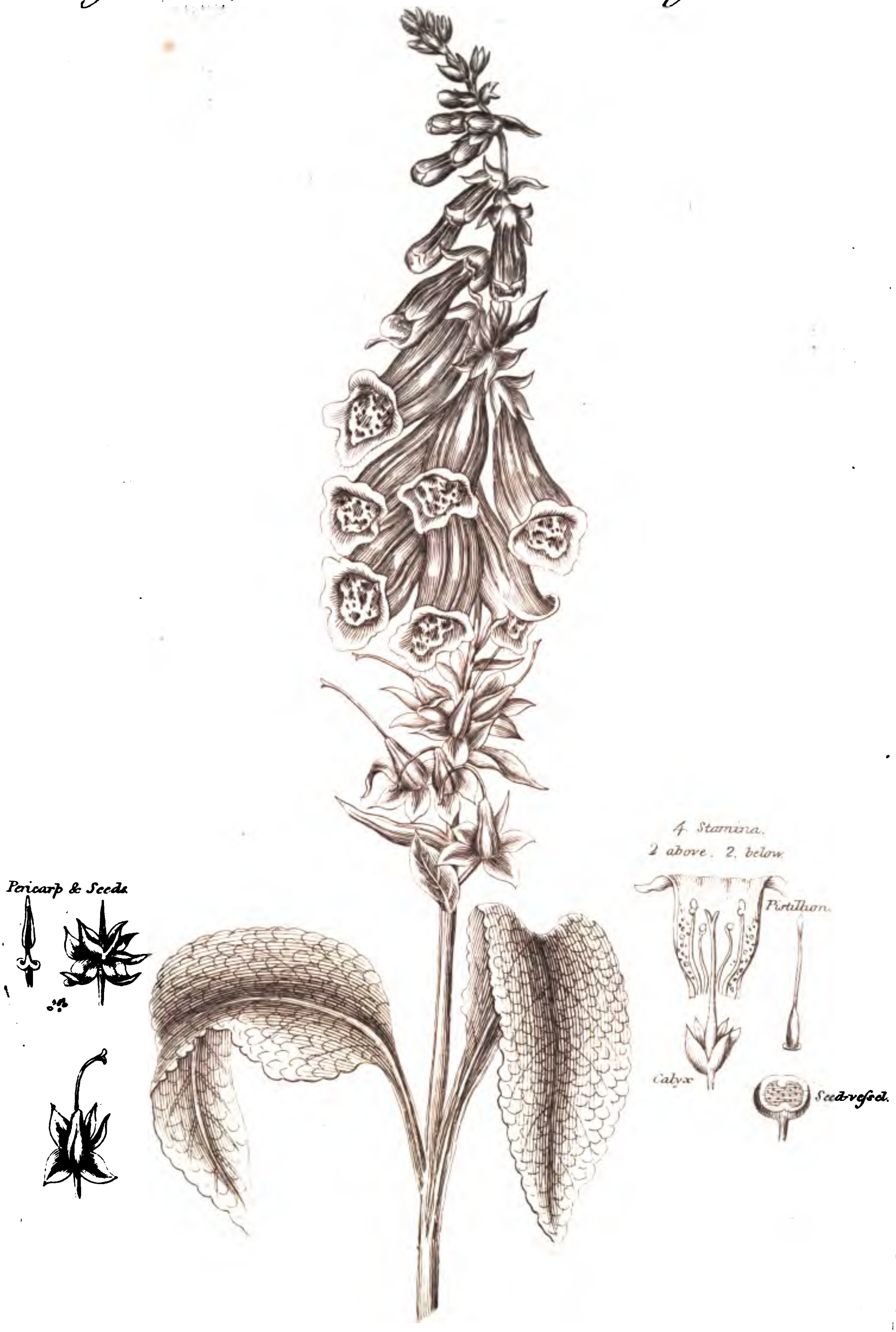
DIDYNAMIA.

Four Stamina,

two long, two short.

Girtin sculpt

Digitalis purpurea; or Purple Foxglove.


Pericarp & Seeds.
4. Stamina.
2 above. 2. below.
Pistillum.
Calyx
Seedveſsel.

London Published for Dr Thornton Jany 1st 1812.

Henderson del.

Eves sculp.

Claſs 15

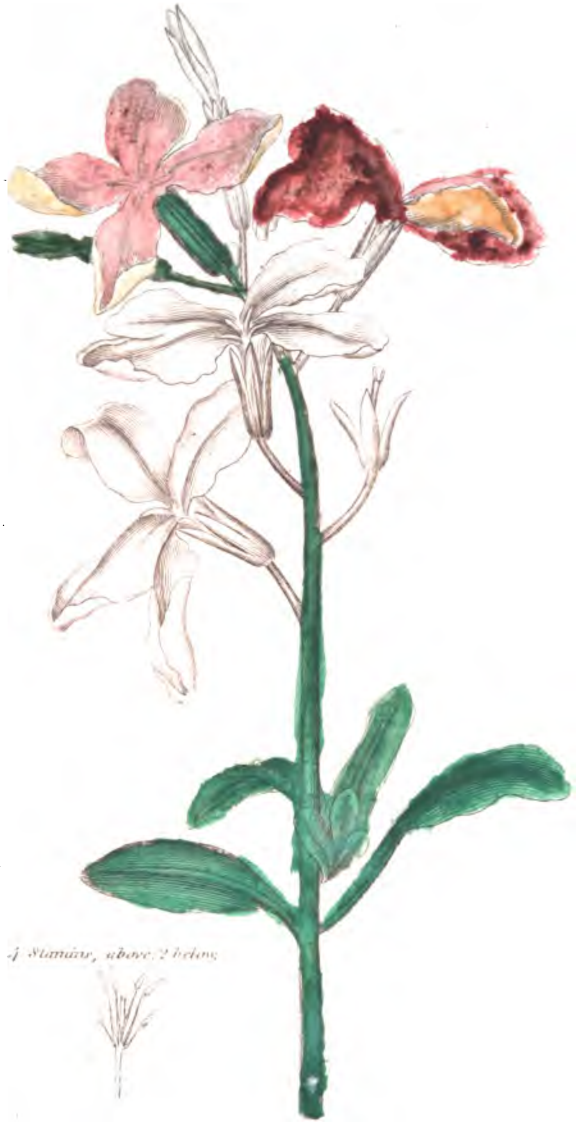
TETRADYNAMIA.

Six Stamina

four long, four ſhort

Girtin sc^{t}

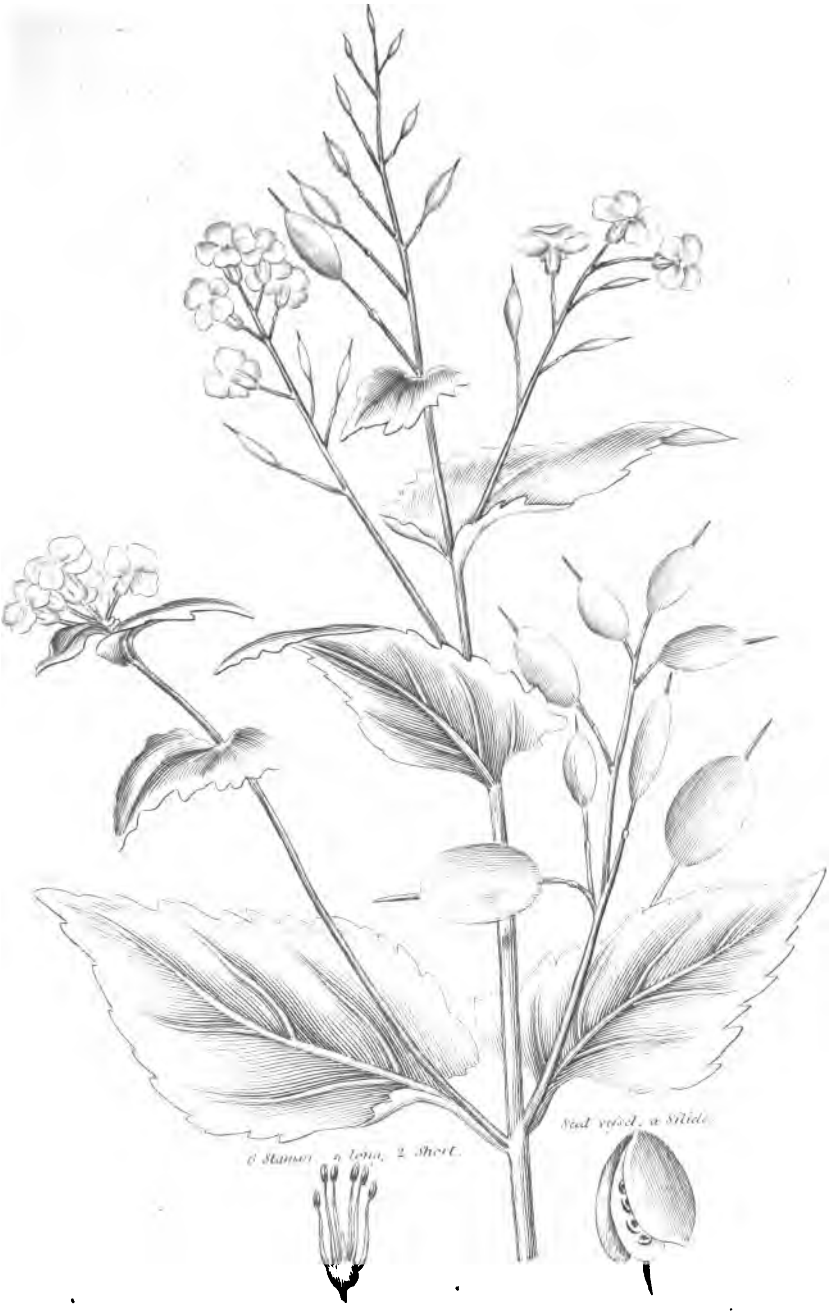
Cheiranthus incanus, or Brompton Stock.



derson del		Eves sculp

London. Published for Dr. Thornton Jan.y 1st 1812.

Lunaria, or Honesty.



Henderson del.

Eves sculp.

London Published by Dr. Thornton Jany 1st 1812.

Claſs 16

MONADELPHIA

Stamina united in their filaments,

forming one body.

Girtin sc.t

Claſs 17.

DIADELPHIA.

Stamina united in their filaments,
forming two bodies.

BIBLIOTHECA BODLEIANA

Claſs 18.

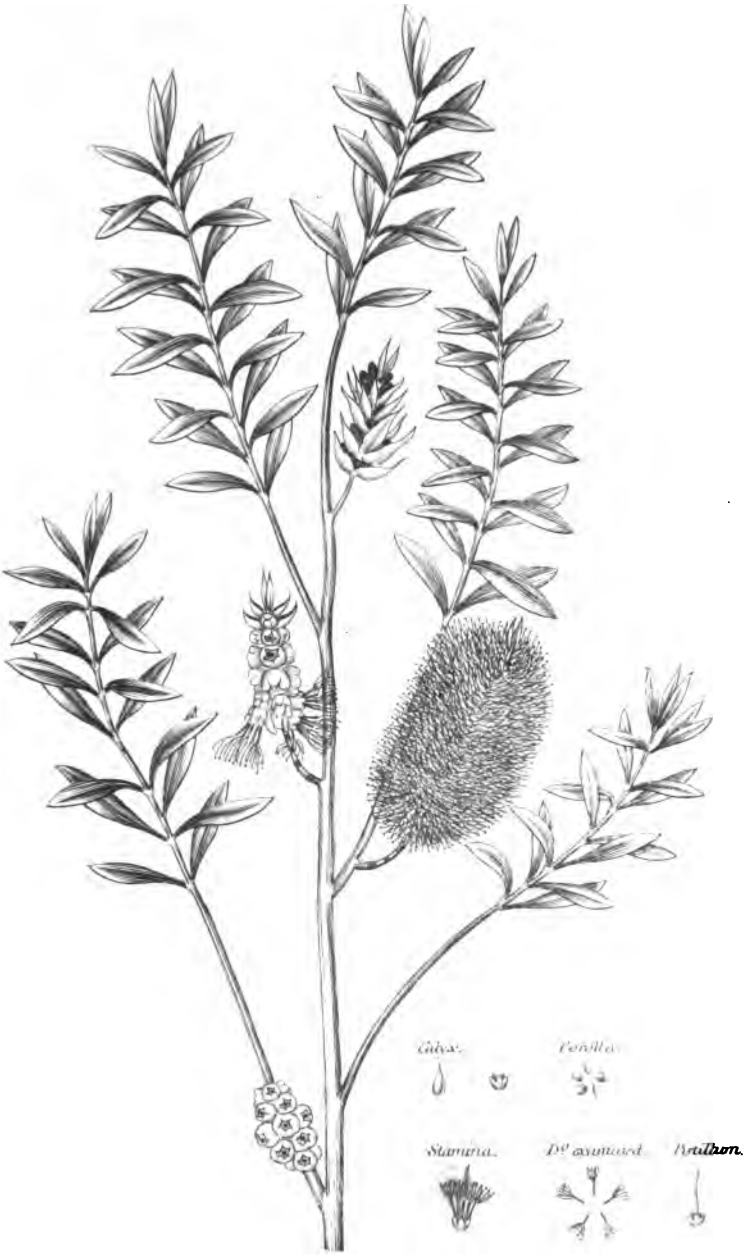
POLYADELPHIA.

Stamina united in their filaments,

forming three or more bodies.

Curtis sc.

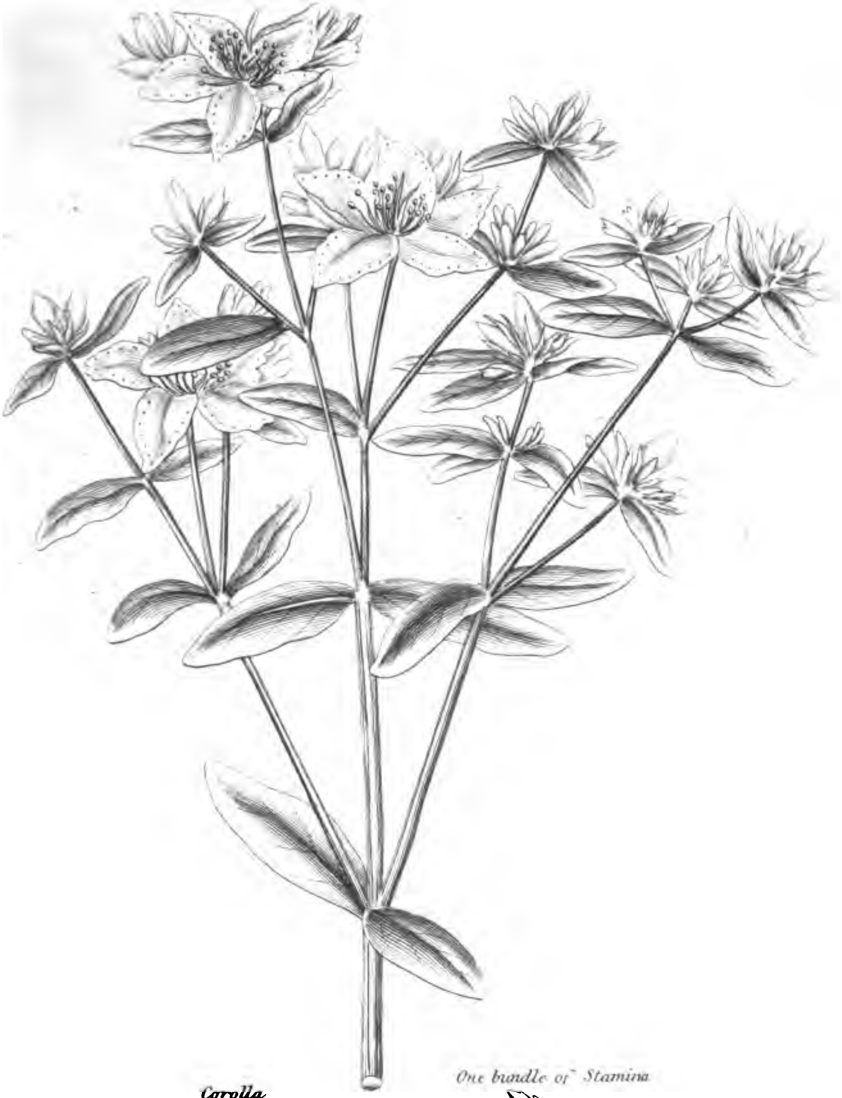
Melaleuca Ericifolia, or Heath-leaved Melaleuca.



Henderson del. Evans sculp.

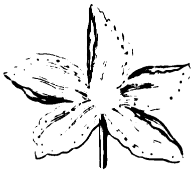
London Published for Dr. Thornton, Jany. 1 1812.

Hypericum perforatum; perforated St. John's-wort.

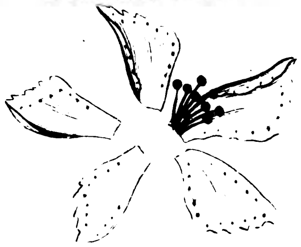


Calyx

Corolla



One bundle of Stamina



Pistillum

London Published for Dr. Thornton Jan.y 1.1812.

Henderson del *Ives sculp.*

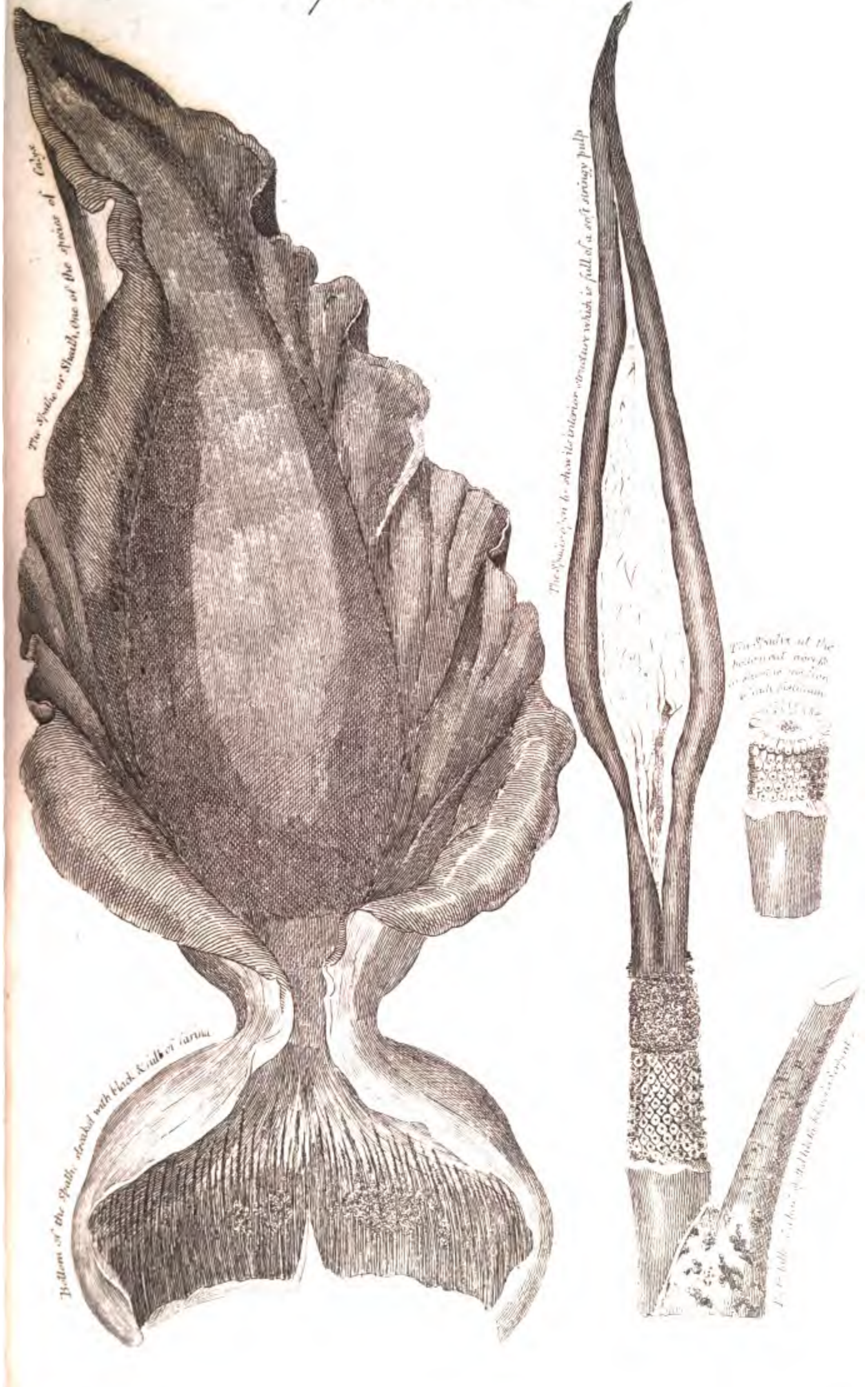
Claſs 19.

GYNANDRIA.

Stamina growing out of the Pistillum.

Girtin sct

Anatomy of the Dragon Arum.
A poisonous Plant.


The Spathe or Sheath, one of the species of Calyx
The Spadix cut open to show its interior structure which is full of a soft stringy pulp
The Spadix at the bottom cut across to [illegible]
Bottom of the Spathe, clouded with black & full of farina

Henderson pinx.

Smart sculp.

London, Publish'd by Dr Thornton Aug 1811

BIBLIOTHECA·BODLEIANA·
DOMINUS ILLUMINATIO MEA

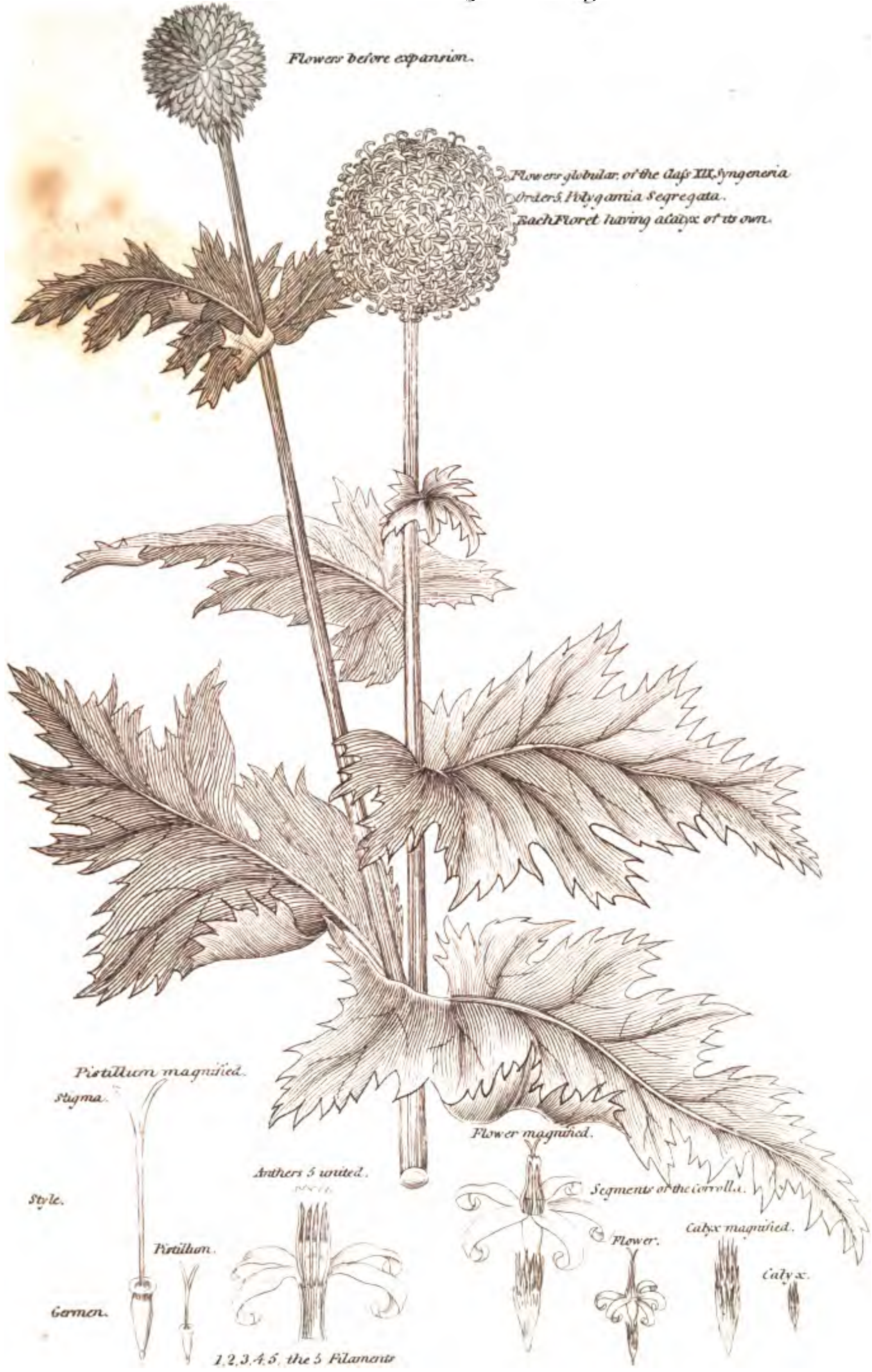
Claſs 20.

SYNGENESIA.

Stamina having five united Anthers.

BIBLIOTHECA · BODLEIANA ·

Echinops spærocepholus or Great Globe Thistle


Flowers before expansion.
Flowers globular, of the Claſs XIX, Syngenesia
Order 5, Polygamia Segregata.
Each Floret having a calyx of its own.
Pistillum magnified.
Stigma.
Style.
Germen.
Pistillum.
Anthers 5 united.
1,2,3,4,5, the 5 Filaments
inserted into the Corrolla.
Flower magnified.
Segments of the Corrolla.
Flower.
Calyx magnified.
Calyx.

London Published by Dr. Thornton Octr. 1 1811.

BIBLIOTHECA · BODLEIANA ·

Claſs 21.

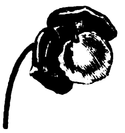
MONOECIA.

Staminiferous and pistilliferous Flowers
on the same Plant.

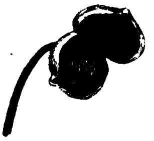
BIBLIOTHECA

THE MALE FLOWER.

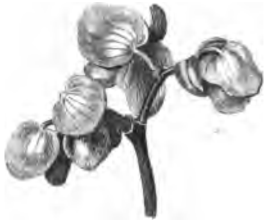
1. Male flowers protected by a membranous Sheath.



2. This Sheath exposed.

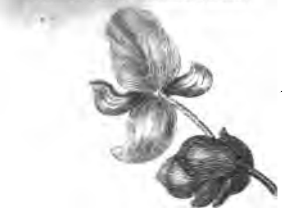


3. Male flowers in Clustres before expansion.

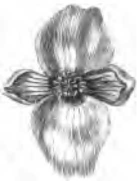


4. The first State or the petals closed

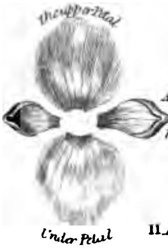
5. Back View of a male flower.



6. Front View of a male flower



.The Four Petals of the male flower separate


the upper Petal
A side Petal inversely heart shaped
Under Petal

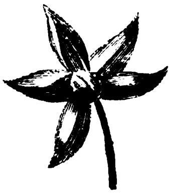
8. The numerous Stamina in the center of the male flower

9. A Stamen magnified

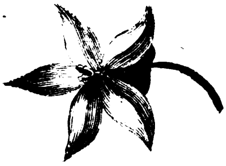
10. The fructifying Pollen

THE FEMALE FLOWER.

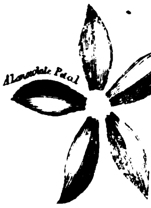
11. Back View of a female flower



12. Front View of a female flower



the Five Petals of the female flower separate.



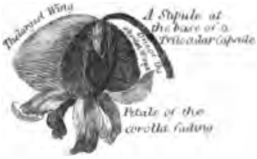
14. A Tricuspid Pistillum in the center of the female flower.

the three styles coalesced at their base.

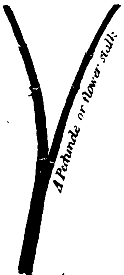
15. One of these separate.

Stigma two headed, forked.
Style very short.

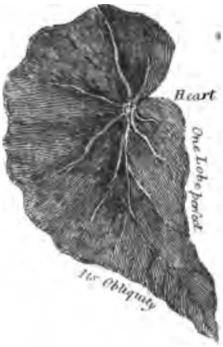
16. A Three-winged Seed-Vessel.


The larger Wing
A Stipule at the base of a Trilocular Capsule
Petals of the corolla fading

17. The Stalk supporting the Female flowers dichotomous or forked

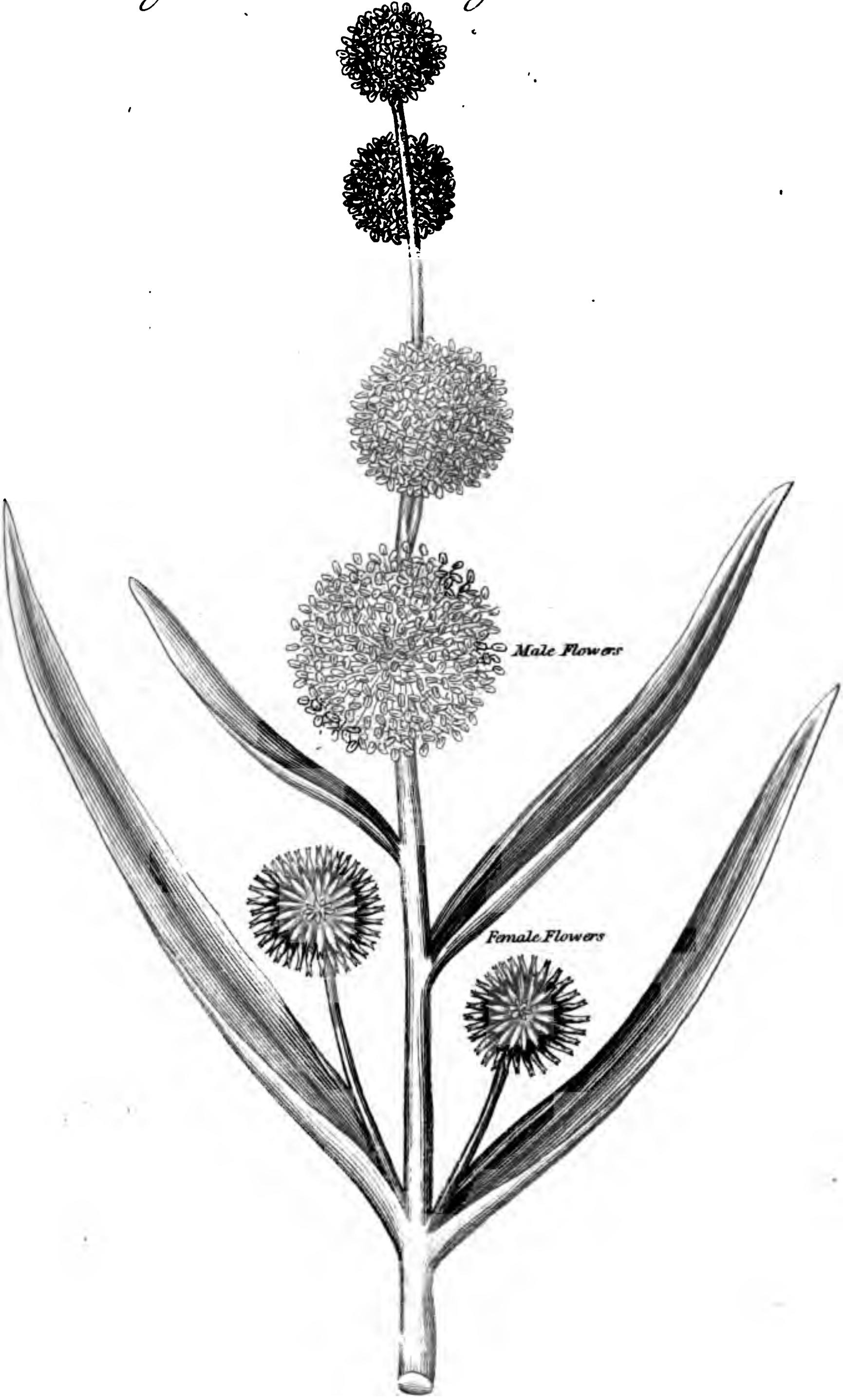

A Peduncle or flower stalk

18. A leaf



(Anatomy of the Begonia)

Sparganium simplex: leſs Bur-reed.

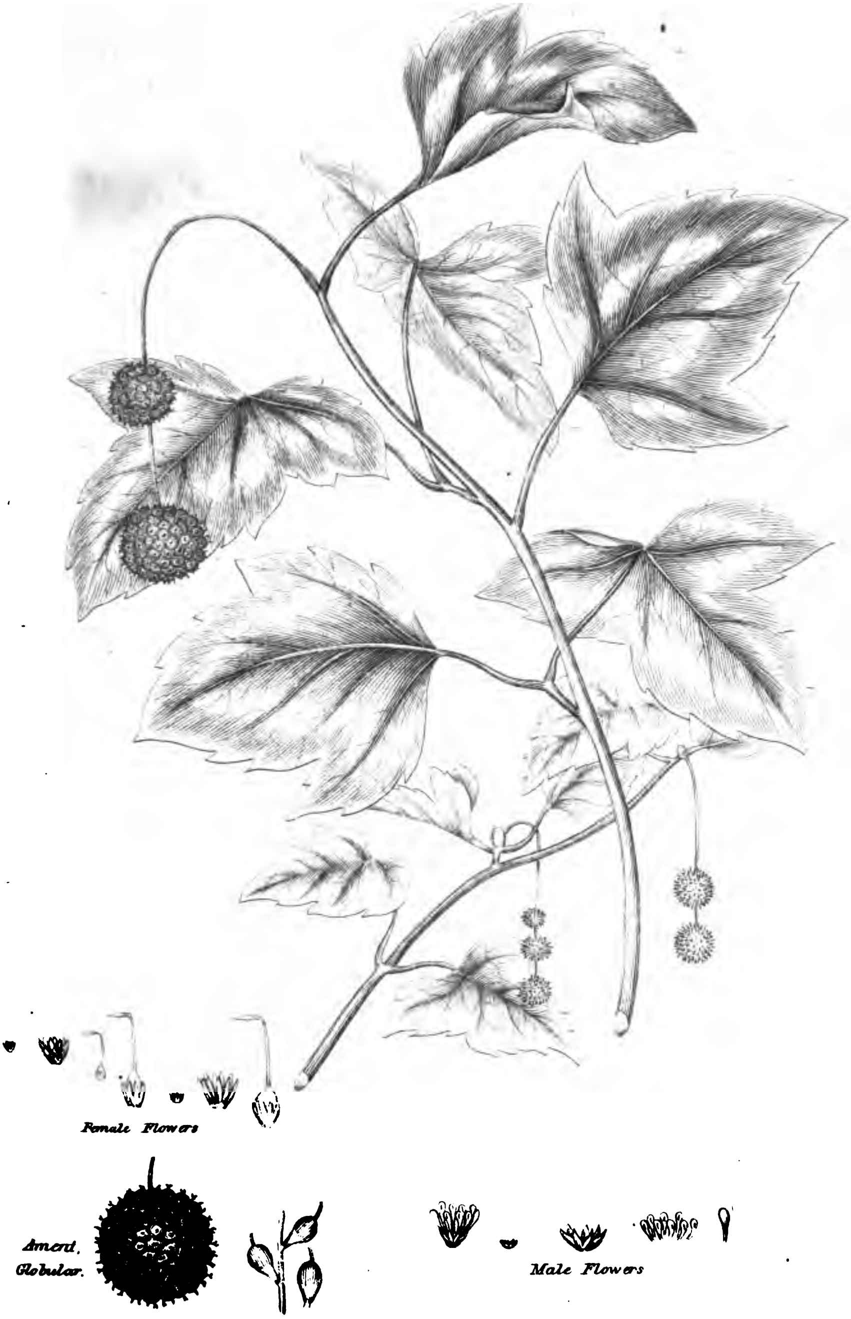


London. Published for Dr. Thornton Jany 1. 1812.

Henderson del. Warner sculp.

BIBLIOTHECA·BODLEIANA

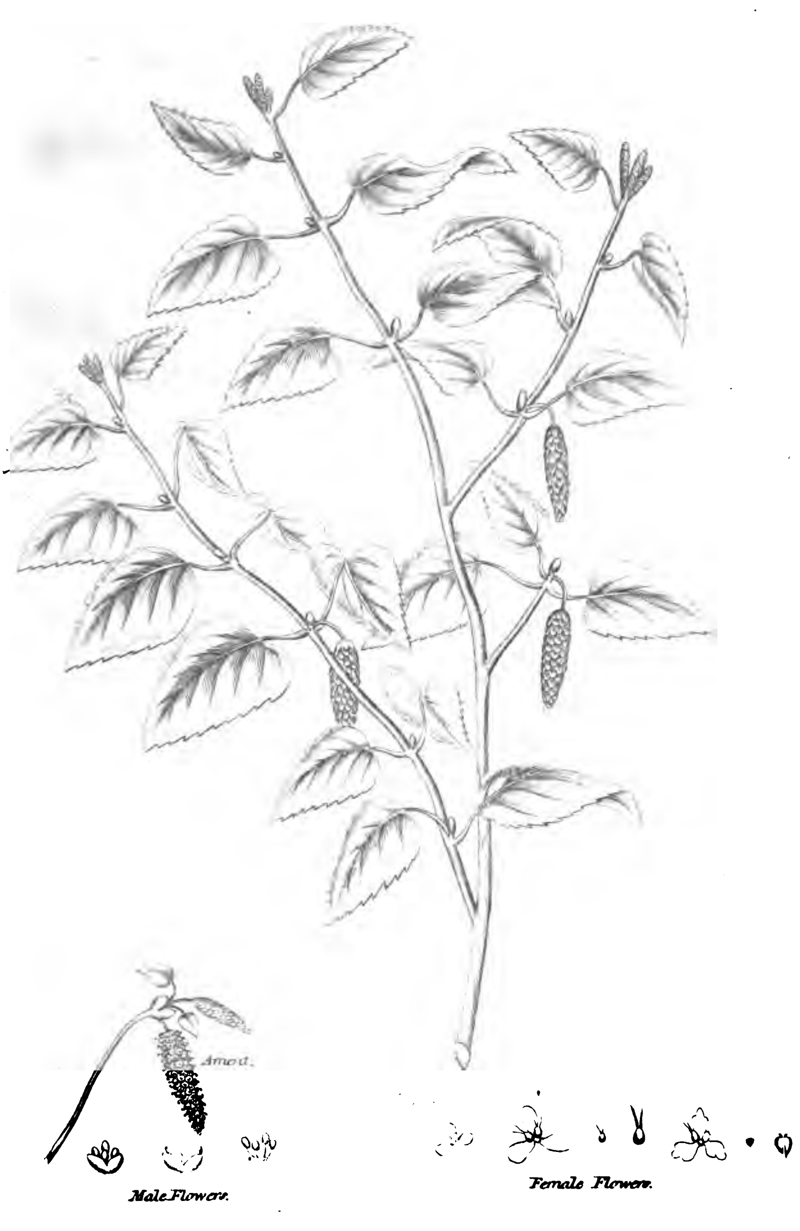
Platanus Occidentalis, or Lobe-leaved Plane-tree.



Henderson del   Eves sculp.

London, Published for Dr. Thornton, Jany. 1st 1812.

Beluta Alba, or Birch Tree.


Ament.
Male Flowers.
Female Flowers.

Henderson del.
Ives sculp.

London Published for Dr. Thornton. Jan 1. 1812.

Claſs 22.

DIOECIA.

Staminiferous and Pistilliferous Flowers on different Plants.

Girtin sc.

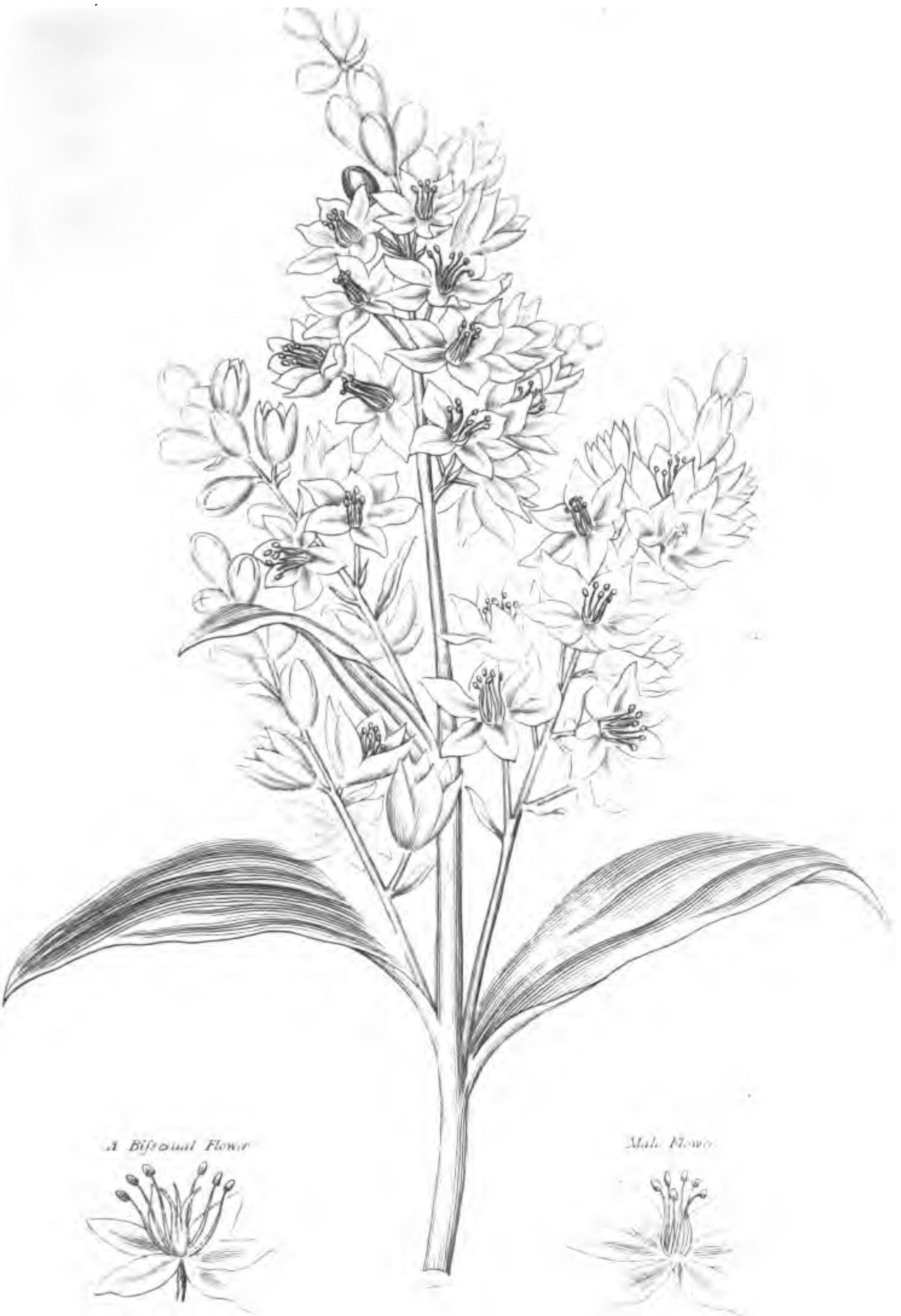
Claſs 23.

POLYGAMIA.

Bisexual Flowers with Staminiferous
or Pistilliferous Flowers.

Girtin sct

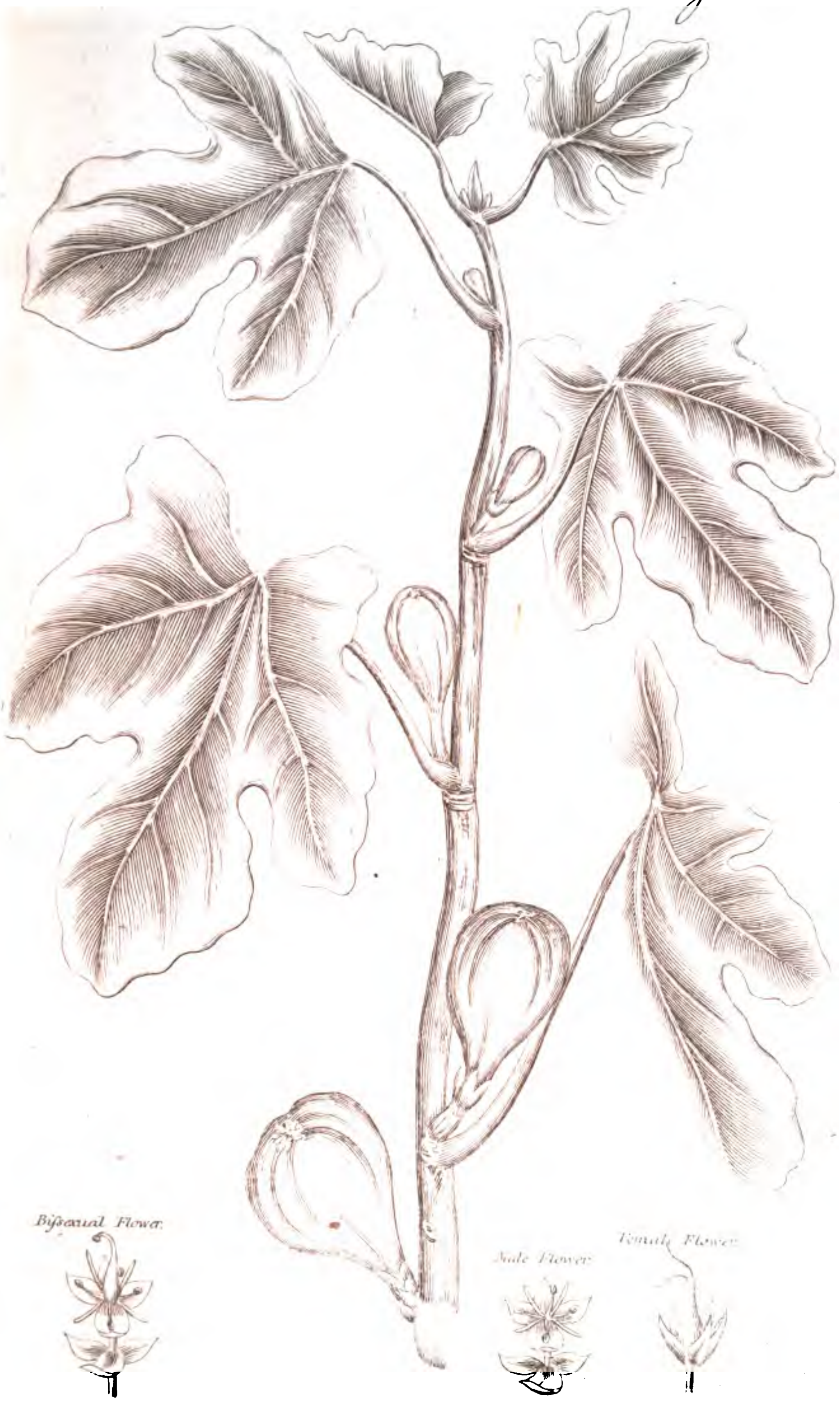
Veratrum album, or White Hellebore.



Henderson del. Eves sculp.

London, Published for Dr. Thornton Jan.y 1. 1812.

Ficus Carica; or Common Fig.


Bisexual Flower.
Male Flower.
Female Flower.

Henderson del.
Ever sculp.
London, Published for Dr. Thornton, Jany. 1. 1812.

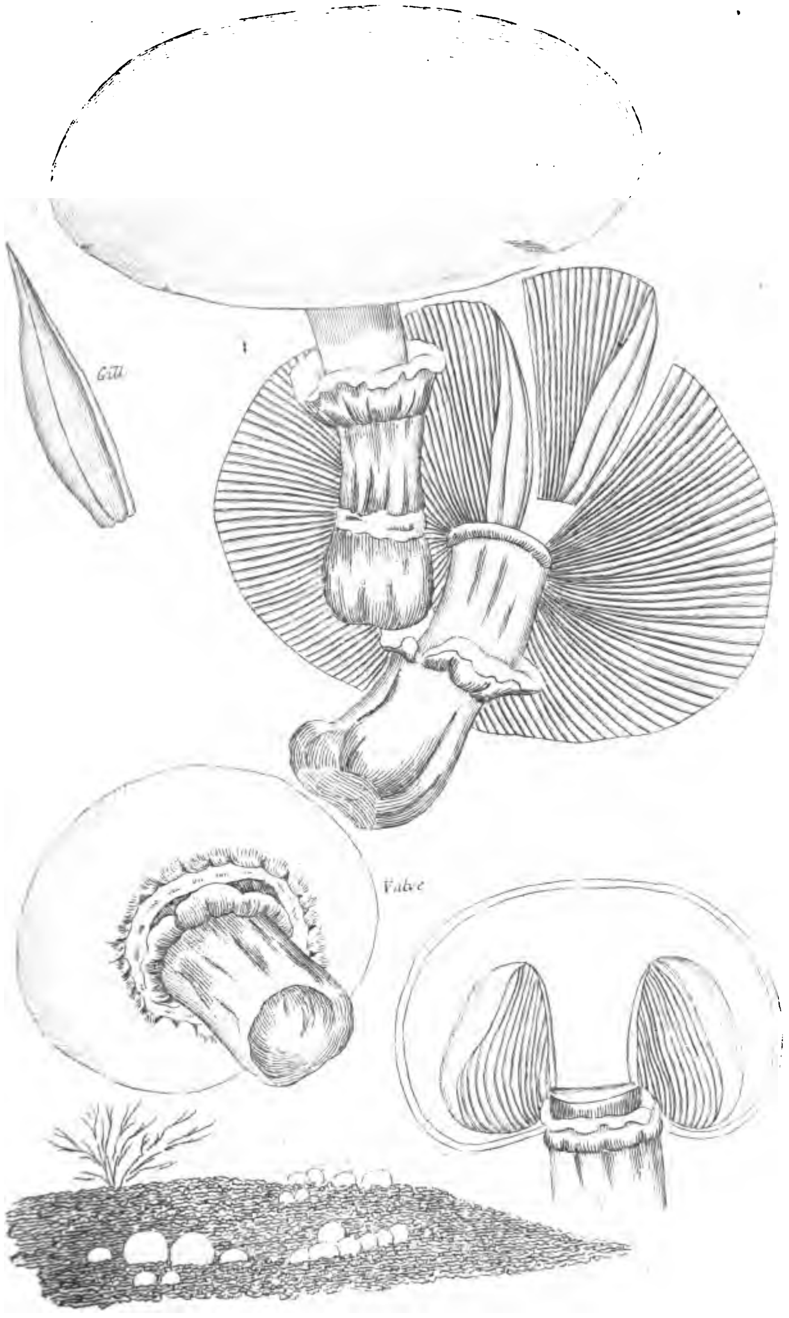
Claſs 24.

CRYPTOGAMIA.

Stamina & Pistilla invisible.

[illegible]

Agaricus Campestris, or Common Mushroom.



Warner sculp.

Henderson del. London. Published for Dr Thornton, Jany. 1.1812.

ORDERS OF THE SEXUAL SYSTEM.

I. The Orders *of the following 13 Claſses* 1 Monándria, 2 Diándria, 3 Triándria, 4 Tetrándria, 5 Pentándria, 6 Hexándria, ria, 8 Octándria, 9 Enneándria, 10 Decándria, 11 Dodecándria, 12 Icoſándria, 13 Polyándria, *are taken from the number of* *les or Pistilla, and terminate in* Gynia, *as the Claſses did in* Andria, *with the Greek Numerals preceding: thus,*

Orders	Explanation
1 Monógynia,	*1 Pistillum.*
2 Digynia	*2 Pistilla.*
3 Trigynia	*3 Pistilla.*
4 Tetrágynia,	*4 Pistilla.*
5 Pentágynia,	*5 Pistilla.*
6 Hexágynia,	*6 Pistilla.*
7 Heptágynia,	*7 Pistilla.*
8 Octógynia,	*8 Pistilla.*
9 Enneágynia,	*9 Pistilla.*
10 Decágynia,	*10 Pistilla.*
11 Dodecágynia,	*11 Pistilla.*
12 Polygynia,	*many Pistilla.*

SECTION II. Claſs 14. Didynámia, *has the Orders taken from the Situation of the Seeds.*

Orders	
1 Gymnoſpérmia,	*Naked Seeds.*
2 Angioſpérmia,	*Covered Seeds (Capsuled)*

SECTION III. Claſs 15, Tetradynámia, *has its Orders from a difference in the Shape of the Seedveſsel.*

Orders	
1 Siliculóſa,	*Pod a Silicle (a broad Pod.)*
2 Siliquóſa,	*Pod a Silique (a long Pod.)*

SECTION IV. Claſses 16 Monodélphia, 17 Diadélphia, 18 Polyadélphia, *(for* Claſs 19, *vide SECT. V.)* *also* Claſs 20 Gynándria, *have their Orders taken from the Number of Stamina: thus,*

Orders	
1 Pentándria,	*5 Stamina.*
2 Hexándria,	*6 Stamina.*
3 Octándria &c.	*8 Stª & so on,* 4 Endecándria, 5 Icoſándria, *to*
6 Polyándria,	*20 or more Stª as inserted on the Receptacle.*

Note. *For here the Pistilla, Seed, or Seedveſsel, furnishes no subdivisions, hence the neceſsity of having recourse to the Number alone, & Number with Insertions of the Stamina.*

V. Claſs 19 Syngeneſia, *has its Orders taken from the Nature of the Flower; & to understand this well it will be neceſsary to shew it by an* Analyſi

Orders

- *Flowers.*
  - *Compound*
    - *Each Floret having No peculiar Calyx*
      - *All the Florets alike* .... 1 Polygámia Æquális.
      - *Florets diversified.*
        - *Bisexual in the Disk, Perfect.*
          - *Pistil flowers in the Ray, Perfect* .... 2 Polygámia Superflua.
          - *Dº Imperfect* .... 3 Polygámia Fruſtránea.
        - *Bisexual in the Disk, Imperfect:*
          - *Dº Perfect* .... 4 Polygámia Neceſsária.
    - *Each Floret having A peculiar Calyx.* .... 5 Polygámia Segregáta.
  - *Not Compound, but having the Claſsical Character:* .... 6 Monogámia.

SECTION VI. Claſses 21 Monœcia, 22 Diœcia, *take their Orders from the Number, & other peculiarities of the Stamina, thus.*

Orders	
1 Monándria,	*1 Stamen.*
2 Diándria,	*2 Stª these Claſses subdividing the preceding, to*
3 Gynándria,	*Stamina arising from the Pistillum.*
4 Syngeneſia,	*5 Anthers united.*

e. *For as we deſcend with the Claſses, they have the preeminence of those placed above them, & hence what would otherwise have be* es, *become Orders, with the Claſsical Appellation. This seeming & perplexing incongruity is obviated in our Reformed Sexual Syst* *full explanation of which, Vide our Introduction to Botany.*

SECTION VII. Thus in Claſs 23 Polygámia, *we have Orders.*

Orders	
1 Monœcia,	*1 Habitation.*
2 Diœcia,	*2 Habitations.*
3 Triœcia,	*3 Habitations.*

SECTION VIII. Claſs 24 Cryptogamia, *has 4 Orders.*

Orders	
1 Filicés,	*Ferns.*
2 Muſci,	*Moſses.*
3 Algæ,	*Sea Weeds.*
4 Fungi,	*Funguſes.*

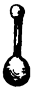
Benjⁿ Davies ſc.

f.p.36.

ORDERS OF THE SEXUAL SYSTEM

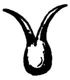
I

Monogynia
1. Pistillum.



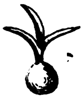
II

Digynia
2. Pistilla.



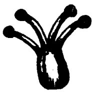
III

Trigynia
3 Pistilla.



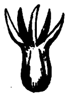
IV

Tetragynia
4. Pistilla.



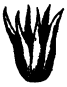
V

Pentagynia
5. Pistilla.



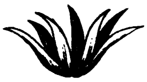
VI

Hexagynia
6. Pistilla.



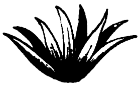
VII

Heptagynia
7. Pistilla.



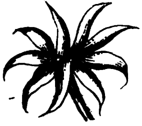
VIII

Octogynia
8. Pistilla.



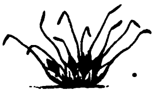
IX

Enneagynia.
9. Pistilla.



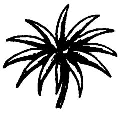
X

Decagynia
10. Pistilla.



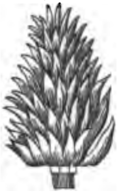
XI

Dodecagynia
12. Pistilla.



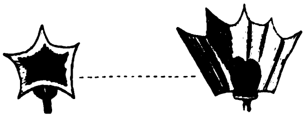
XII

Polygynia
Many Pistilla.



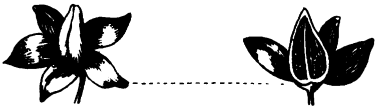
XIII

Gymnospermia
Seeds not Capsuled.



XIV

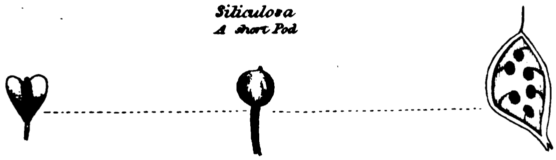
Angiospermia
Seeds in a Capsule.



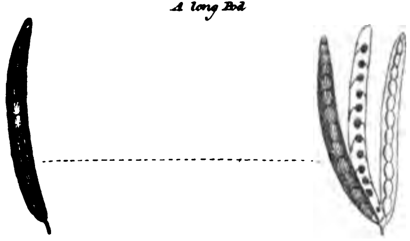
Henderson del.
Warner sculp
London . Published . by . Dr Thornton October 1811 .

ORDERS CONTINUED

XV
Siliculosa
A short Pod



XVI
Siliquosa
A long Pod



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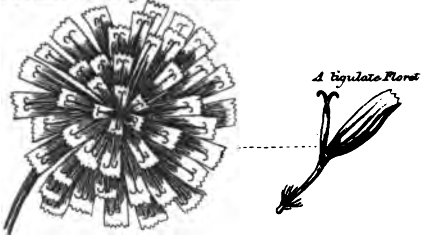
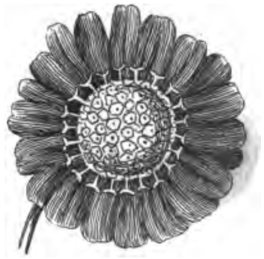
ORDERS CONTINUED

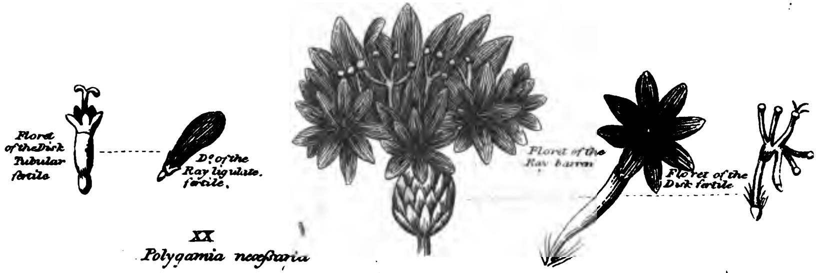
XVII
Polygamia Æqualis
Florets all alike either ligulate or tubular



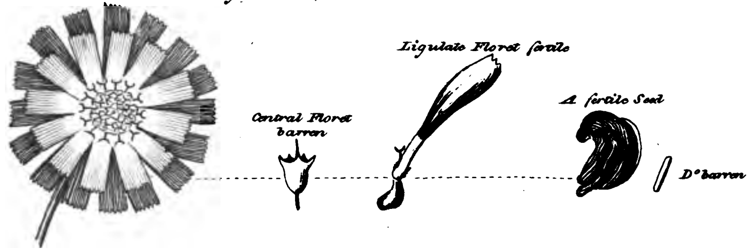
XVIII
Polygamia superflua
Central Florets Fertile. D^o of the Ray fertile.



XIX
Polygamia frustrane
Central Floret fertile of the Ray barren

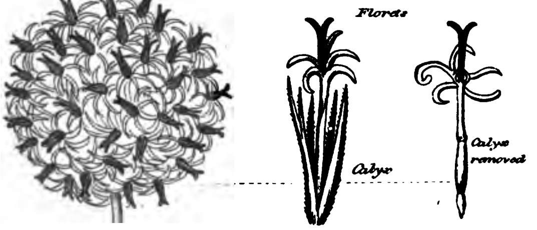

Floret of the Disk Tubular fertile
D^o of the Ray ligulate. fertile.
Floret of the Ray barren
Floret of the Disk fertile

XX
Polygamia neceſsaria
Central Floret barren of the Ray fertile

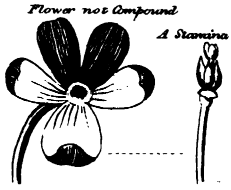


NB The Florets here are somewhat magnified.

XXI
Polygamia segregata
Florets having a Calyx



XXII
Monogamia
Flower not Compound



London. Published by D^r. Thornton Oct^r. 1811.

ORDERS CONTINUED

XXIII.

Monœcia

(Unisexual Flowers on the same Plant)

XXIV.

Diœcia

(D° on different Plants,

XXV

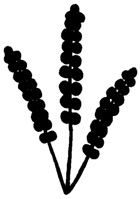
*Triœcia.**

Is where flowers of the nature of XXIII, & XXIV, occur with bisexual flowers.

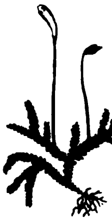
London. Published by D^r. Thornton Oct^r. 1811.

ORDERS CONTINUED

XXVI.
Filices.
(Ferns)

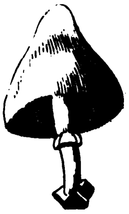


XXVII.
Musci.
(Moſses)



XXVIII.
Algæ.
(Sea Weeds)

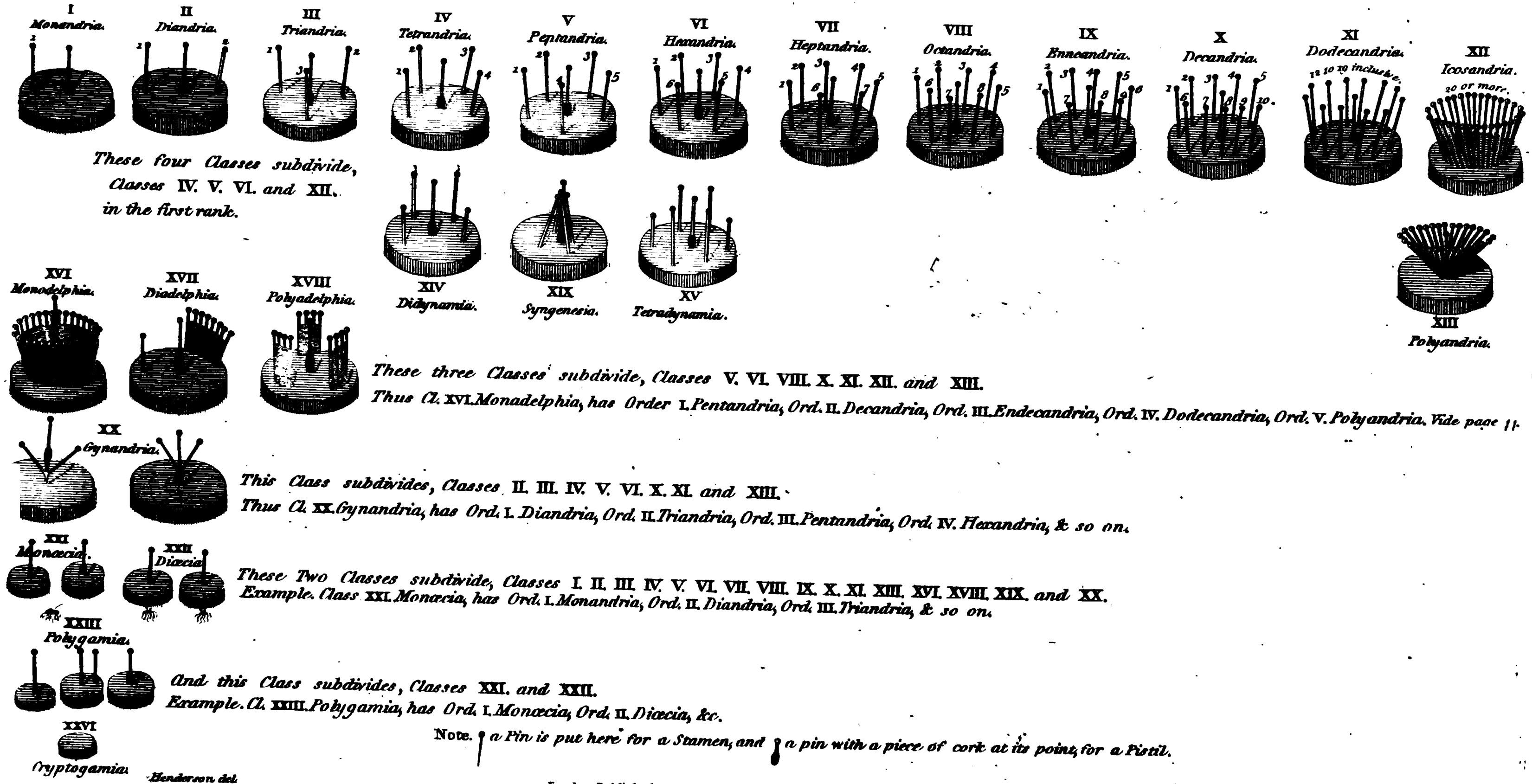
XXIX.
Fungi.
(Mushrooms)



London Published by Dr. Thornton Octr. 1811.

To face p. 23.

A Symbolical Representation *of the* SEXUAL SYSTEM *of* CAROLUS VON LINNÆUS, *Explanatory of the* Reformed System.



These four Classes subdivide,
Classes IV. V. VI. *and* XII.
in the first rank.

These three Classes subdivide, Classes V. VI. VIII. X. XI. XII. *and* XIII.
Thus Cl. XVI. *Monadelphia, has Order* I. *Pentandria, Ord.* II. *Decandria, Ord.* III. *Endecandria, Ord.* IV. *Dodecandria, Ord.* V. *Polyandria. Vide page 11.*

This Class subdivides, Classes II. III. IV. V. VI. X. XI. *and* XIII.
Thus Cl. XX. *Gynandria, has Ord.* I. *Diandria, Ord.* II. *Triandria, Ord.* III. *Pentandria, Ord.* IV. *Hexandria, & so on.*

These Two Classes subdivide, Classes I. II. III. IV. V. VI. VII. VIII. IX. X. XI. XIII. XVI. XVIII. XIX. *and* XX.
Example. Class XXI. *Monœcia, has Ord.* I. *Monandria, Ord.* II. *Diandria, Ord.* III. *Triandria, & so on.*

And this Class subdivides, Classes XXI. *and* XXII.
Example. Cl. XXIII. *Polygamia, has Ord.* I. *Monœcia, Ord.* II. *Diœcia, &c.*

Note. *a Pin is put here for a Stamen, and a pin with a piece of cork at its point, for a Pistil.*

Henderson del.

London, Published as the Act directs, by Dr. Thornton Decr. 1st. 1810.

Cooper sculpt.

After this *Analysis*, or *Separation*, the student should take the classes in the reverse order, commencing with CLASS I. MONANDRIA, and ending with CLASS XXIV. CRYPTOGAMIA.

SYNTHESIS OF THE CLASSES

OF THE

SEXUAL SYSTEM

OF

CAROLUS VON LINNÆUS.

CLASSES.

1.	Monandria.	One Stamen.
2.	Diandria.	Two Stamens, or Stamina.
3.	Triandria.	Three Stamens.
4.	Tetrandria.	Four Stamens, of equal length.
5.	Pentandria.	Five Stamens, anthers not united.
6.	Hexandria.	Six Stamens, all of equal length.
7.	Heptandria.	Seven Stamens.
8.	Octandria.	Eight Stamens.
9.	Enneandria.	Nine Stamens.
10.	Decandria.	Ten Stamens, filaments separate.
11.	Dodecandria.	Twelve Stamens, to nineteen, inserted on the receptacle.

12.	ICOSANDRIA.	Twenty or more Stamens, inserted upon the calyx or corolla.
13.	POLYANDRIA.	Many Stamens, inserted into the receptacle.
14.	DIDYNAMIA.	Four Stamens, two long, two short: flowers ringent.
15.	TETRADYNAMIA.	Six Stamens, four long, two short: flowers cruciform.
16.	MONADELPHIA.	Filaments united at bottom, but separate at top.
17.	DIADELPHIA.	Filaments united in two sets: flowers papilionaceous.
18.	POLYADELPHIA.	Filaments united in three, or more sets.
19.	SYNGENESIA.	Anthers united. Five Stamens: flowers mostly compound.
20.	GYNANDRIA.	Stamens inserted on the pistil, or on a pillar elevating the pistil.
21.	MONŒCIA.	Stamens and pistils in separate corollas, upon the same plant.
22.	DIŒCIA.	Stamens and pistils in distinct corollas, upon different plants.
23.	POLYGAMIA.	Various Situations. Stamens only, or pistils only, along with bissexual flowers.
24.	CRYPTOGAMIA.	Stamens and pistils inconspicuous.

SYNTHESIS

OF THE

CLASSES AND ORDERS.

Number of the Classes.	CLASSES.	Orders in each Class.	ORDERS.
1.	MONANDRIA.	2.	1. Monogynia. 2. Digynia.
2.	DIANDRIA.	3.	1. Monogynia. 3. Tryginia. 2. Digynia.
3.	TRIANDRIA.	3.	1. Monogynia. 3. Tryginia. 2. Digynia.
4.	TETRANDRIA.	3.	1. Monogynia. 3. Tetragynia. 2. Digynia.
5.	PENTANDRIA.	6.	1. Monogynia. 4. Tetragynia. 2. Digynia. 5. Pentagynia. 3. Trigynia. 6. Polygynia.
6.	HEXANDRIA.	5.	1. Monogynia. 4. Tetragynia. 2. Digynia. 5. Polygynia. 3. Trigynia.
7.	HEPTANDRIA.	4.	1. Monogynia. 3. Tetragynia. 2. Digynia. 4. Heptagynia.
8.	OCTANDRIA.	4.	1. Monogynia. 3. Trigynia. 2. Digynia. 4. Tetragynia.
9.	ENNEANDRIA.	3.	1. Monogynia. 3. Hexagynia. 2. Tryginia.
10.	DECANDRIA.	5.	1. Monogynia. 4. Pentagynia. 2. Digynia. 5. Decagynia. 3. Trigynia.
11.	DODECANDRIA.	6.	1. Monogynia. 4. Pentagynia. 2. Digynia. 5. Octagynia. 3. Trigynia. 6. Dodecagynia.
12.	ICOSANDRIA.	5.	1. Monogynia. 4. Pentagynia. 2. Digynia. 5. Polygynia. 3. Trigynia.
13.	POLYANDRIA.	7.	1. Monogynia. 5. Pentagynia. 2. Digynia. 6. Hexagynia. 3. Trigynia. 7. Polygynia. 4. Tetragynia.

Number of the Classes.	CLASSES.	Orders in each Class.	ORDERS.	
14.	DIDYNAMIA.	2.	1. Gymnospermia.	2. Angiospermia.
15.	TETRADYNAMIA.	2.	1. Siliculosa.	2. Siliquosa.
16.	MONADELPHIA.	5.	1. Pentandria. 2. Decandria. 3. Endecandria.	4. Dodecandria. 5. Polyandria.
17.	DIADELPHIA.	4.	1. Pentandria. 2. Hexandria.	3. Octandria. 4. Decandria.
18.	POLYADELPHIA.	4.	1. Pentandria. 2. Dodecandria.	3. Icosandria. 4. Polyandria.
19.	SYNGENESIA.	6.	1. Polygamia Æqualis. 2. Polygamia Superflua. 3. Polygamia Frustranea. 4. Polygamia Necessaria. 5. Polygamia Segregata. 6. Monogamia.	
20.	GYNANDRIA.	8.	1. Diandria. 2. Triandria. 3. Tetrandria. 4. Pentandria.	5. Hexandria. 6. Decandria. 7. Dodecandria. 8. Polyandria.
21.	MONŒCIA.	11.	1. Monandria. 2. Diandria. 3. Triandria. 4. Tetrandria. 5. Pentandria. 6. Hexandria.	7. Heptandria. 8. Polyandria. 9. Monadelphia. 10. Syngenesia. 11. Gynandria.
22.	DIŒCIA.	14.	1. Monandria. 2. Diandria. 3. Triandria. 4. Tetrandria. 5. Pentandria. 6. Hexandria. 7. Octandria.	8. Enneandria. 9. Decandria. 10. Dodecandria. 11. Polyandria. 12. Monadelphia. 13. Syngenesia. 14. Gynandria.
23.	POLYGAMIA.	3.	1. Monœcia. 2. Diœcia.	3. Triœcia.
24.	CRYPTOGAMIA.	4.	1. Filices. 2. Musci.	3. Algæ. 4. Fungi.

SYNTHESIS OF THE SEXUAL SYSTEM

OF

CAROLUS VON LINNÆUS;

Vith the Classes and Orders, explained and illustrated by Examples

CLASS I. MONANDRIA (*One Stamen*), contains two ORDERS.

DERS.				EXAMPLES.
nogynia	having	one	Pistillum.	SALICORNIA, (*Jointed Glass-wort.*) CANNA, F.* *I* *Flowering Reed.*)
gynia	. . . .	two	Pistilla.	CALLITRICHE, (*Star-headed Water Chickweed.*) BLI (*Strawberry Spinage.*)

CLASS II. DIANDRIA (*Two Stamina*, contains three ORDERS.

nogynia	having	one	Pistillum.	LIGUSTRUM, (*Privet.*) VERONICA, (*Speedwell.*)
gynia	. . . .	two	Pistilla.	ANTHOXANTHUM, (*Sweet-scented Vernal-Grass.*)
gynia	. . . .	three	Pistilla.	PIPER, F. (*Pepper.*)

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* F. Means foreign, those not marked so are the natural produce of England.

CLASS III. TRIANDRIA (*Three Stamina*), contains three ORDERS.

RDERS.				EXAMPLES.
onogynia	having	one	Pistillum.	VALERIANA, (*Valerian.*) CROCUS, (*Saffron.*)—IRIS.
igynia	. . . .	two	Pistilla.	GRAMINA PLERAQUE, (*most of the Grasses.*)
igynia	. . . .	three	Pistilla.	MONTIA, (*Water Chickweed.*)

CLASS IV. TETRANDRIA (*Four equal Stamina*), contains three ORDERS.

onogynia	having	one	Pistillum.	DIPSACUS,(*Teasel.*)SCABIOSA,(*Scabious*).PLANTAGO(*Pla*
gynia	. . . .	two	Pistilla.	APHANES, (*Parsley-piert.*)
tragynia	. . .	four	Pistilla.	POTAMOGETON, (*Pondweed.*)

CLASS V. PENTANDRIA (*Five Stamina*), contains six ORDERS.

onogynia	having	one	Pistillum.	PRIMULA, (*Primrose.*) CONVOLVULUS.—LONICERA, (*suckle.*)
igynia	. . . .	two	Pistilla.	GENTIANA CENTAURIUM, (*Centaury.*) CONIUM, (*He* ULMUS, (*Elm.*)
igynia	. . . .	three	Pistilla.	VIBURNUM, (*Wayfaring Tree.*) SAMBUCUS, (*Elder.*)
tragynia	. . .	four	Pistilla.	PARNASSIA, (*Grass of Parnassus.*)

Orders.				Examples.
5 *Pentagynia*		five	Pistilla.	STATICE, (*Thrift.*) LINUM, (*Flax.*) DROSERA, (*Sundew.*)
6 *Polygynia*		many	Pistilla.	MYOSURUS, (*Mouse-tail.*)

CLASS VI. HEXANDRIA (*Six equal Stamina*), contains five ORDERS.

1 *Monogynia*	having	one	Pistillum.	HYACINTHUS, (*Hyacinth.*) CONVALLARIA, (*Lily of the Valley.*) NARCISSUS, (*Daffodil.*)
2 *Digynia*		two	Pistilla.	ORYZA, F. (*Rice.*)
3 *Trigynia*		three	Pistilla.	RUMEX, (*Dock.*) COLCHICUM, (*Meadow Saffron.*)
4 *Tetragynia*		four	Pistilla.	PETIVERIA, F. (*Guinea-Hen weed.*)
5 *Polygynia*		many	Pistilla.	ALISMA, (*Water Plantain.*)

CLASS VII. HEPTANDRIA (*Seven Stamina*), contains four ORDERS.

1 *Monogynia*	having	one	Pistillum.	TRIENTALIS, (*Chickweed Winter Green.*) ÆSCULUS, F. (*Horse Chesnut.*)
2 *Digynia*		two	Pistilla.	LIMEUM, F.

DERS.				EXAMPLES.
gynia	. . . .	three	Pistilla.	Sarurus, F. (*Lizard's-tail.*)
ptagynia	. . .	seven	Pistilla.	Septas, F.

CLASS VIII. OCTANDRIA (*Eight Stamina*), contains four ORDERS.

onogynia	having	one	Pistillum.	Epilobium, (*Willow Herb*). Erica, (*Heath.*) Da (*Mezerion.*)
gynia	. . . .	two	Pistilla.	Galenia, F.—Weinmannia, F. (*Mountain Chickweed.*
igynia	. . . .	three	Pistilla.	Polygonum, (*Bistort.*) Persicaria, (*Knot Grass.*)
tragynia	. . .	four	Pistilla.	Paris, (*Herb Paris.*) Adoxa Moschatellina, (*Tu* *Moschatel.*)

CLASS IX. ENNEANDRIA (*Nine Stamina*), contains three ORDERS.

onogynia	having	one	Pistillum.	Laurus, F. (*Laurel.*)
igynia	. . . .	three	Pistilla.	Rheum, F. (*Rhubarb.*)
xagynia	. . .	six	Pistilla.	Butomus, (*Flowering Rush.*)

CLASS X. DECANDRIA (*Ten Stamina*), contains five ORDERS.

onogynia	having	one	Pistillum.	Arbutus, (*Strawberry Tree.*) Ruta, F. (*Rue.*) Py (*Winter Green.*)

RDERS.			EXAMPLES.
igynia	two	Pistilla.	SAXIFRAGA, (*Saxifrage.*) DIANTHUS, (*Pink.*) SAPON (*Soap-wort.*)
rigynia	three	Pistilla.	CUCUBALUS, (*Spatling Poppy.*) STELLARIA, (*Stich-wor*
entagynia . . .	five	Pistilla.	SEDUM, (*Stonecrop.*) OXALIS, (*Wood-sorrel.*) AGROST (*Cockle.*) LYCHNIS, (*Meadow Pink.*)
ecagynia . . .	ten	Pistilla.	BASELLA, F. (*American Nightshade.*)

CLASS XI. DODECANDRIA (*Twelve to Nineteen Stamina*), contains six ORDERS.

onogynia having	one	Pistillum.	ASARUM, (*Asarabacca.*) LYTHRUM, (*Purple-spiked Loose*
igynia	two	Pistilla.	AGRIMONIA, (*Agrimony.*) HELIOCARPUS, F.
igynia	three	Pistilla.	RESEDA, (*Dyer's-weed.*) EUPHORBIA, (*Spurge.*)
entagynia . . .	five	Pistilla.	GLINUS, F.
odecagynia . . .	twelve	Pistilla.	SEMPERVIVUM, (*Houseleek.*)
olygynia . . .	many	Pistilla.	ALISMA, F.

SS XII. ICOSANDRIA (*Twenty or more Stamina on the Calyx or Corolla*), contains 5 OR

onogynia having	one	Pistillum.	PRUNUS, (*Black Thorn.*) MYRTUS, F. (*Myrtle.*) AM LUS, F. (*Almond.*)

ɪdᴇʀs.				Examples.
gynia	. . . .	two	Pistilla.	Cratægus, (*Hawthorn.*)
igynia	. . . .	three	Pistilla.	Sorbus, (*Mountain Ash.*)
entagynia	. . .	five	Pistilla.	Mespilus, (*Medlar.*) Spiræa Ulmaria, (*Meadow-s* S. Filipendula, (*Drop-wort.*)
lygynia	. . .	many	Pistilla.	Rosa, (*Rose.*) Rubus, (*Bramble.*) Tormentilla, (*Torm* Fragaria, (*Strawberry.*)

SS XIII. POLYANDRIA (*Twenty or more Stamina on the Receptacle*), contains seven ORD

onogynia	having	one	Pistillum.	Papaver, (*Poppy.*) Chelidonium, (*Celandine.*) Nym (*Water Lily.*)
gynia	. . . .	two	Pistilla.	Fothergilla, F.—Calligonum. F.—Pæonia, F.—(*P*
igynia	. . . .	three	Pistilla.	Delphinium, (*Larkspur.*) Aconitum, (*Monk'shood.*)
tragynia	. . .	four	Pistilla.	Cimicifuga, F.—Tetracera, F.—Caryocar, F.
entagynia	. . .	five	Pistilla.	Aquilegia, (*Columbine.*) Reaumuria, F.—Nigella, (*Fennel Flower.*)
exagynia	. . .	six	Pistilla.	Stratiotes, (*Fresh-water Soldier.*)

Orders.		Examples.
7 *Polygynia* . . .	many Pistilla.	Adonis (*Pheasant's-Eye.*) Ranunculus, (*Crowfoot.*) Helleborus, (*Hellebore.*)

CLASS XIV. DIDYNAMIA (*Four long Stamens, 2 short*), contains two ORDERS.

1 *Gymnospermia,*	Seeds naked in the bottom of the Calyx.	Glechoma, (*Ground Ivy.*) Lamium, (*Dead Nettle.*) Melissa, (*Baum.*)
2 *Angiospermia,*	Seeds contained in a Pericarp.	Antirrhinum, (*Snapdragon.*) Digitalis, (*Foxglove.*) Scrophularia, (*Water-Betony.*)

CLASS XV. TETRADYNAMIA (*Four long Stamens, 2 short*), contains two ORDERS.

Orders.		Examples.
1 *Siliculosa,*	Seeds in a small short, or round pod.	Draba, (*Whitlow-Grass.*) Hesperis, (*Honesty.*) Thlaspi Bursa Pastoris, (*Shepherd's-Purse.*)
2 *Siliquosa,*	Seeds in a long slender pod.	Cheiranthus, (*Wall Flower.*) Brassica, (*Cabbage.*) Sinapis, (*Mustard.*)

Orders.				Examples.
2 *Digynia*		two	Pistilla.	Cratægus, (*Hawthorn.*)
3 *Trigynia*		three	Pistilla.	Sorbus, (*Mountain Ash.*)
4 *Pentagynia* . . .		five	Pistilla.	Mespilus, (*Medlar.*) Spiræa Ulmaria, (*Meadow-sweet.*) S. Filipendula, (*Drop-wort.*)
5 *Polygynia* . . .		many	Pistilla.	Rosa, (*Rose.*) Rubus, (*Bramble.*) Tormentilla, (*Tormentil.*) Fragaria, (*Strawberry.*)

CLASS XIII. POLYANDRIA (*Twenty or more Stamina on the Receptacle*), contains seven ORDERS.

1 *Monogynia*	having	one	Pistillum.	Papaver, (*Poppy.*) Chelidonium, (*Celandine.*) Nymphea, (*Water Lily.*)
2 *Digynia*		two	Pistilla.	Fothergilla, F.—Calligonum. F.—Pæonia, F.—(*Piony.*)
3 *Trigynia*		three	Pistilla.	Delphinium, (*Larkspur.*) Aconitum, (*Monk'shood.*)
4 *Tetragynia* . . .		four	Pistilla.	Cimicifuga, F.—Tetracera, F.—Caryocar, F.
5 *Pentagynia* . . .		five	Pistilla.	Aquilegia, (*Columbine.*) Reaumuria, F.—Nigella, F.—(*Fennel Flower.*)
6 *Hexagynia* . . .		six	Pistilla.	Stratiotes, (*Fresh-water Soldier.*)

Orders.		Examples.
7 *Polygynia* . . .	many Pistilla.	Adonis (*Pheasant's-Eye.*) Ranunculus, (*Crowfoot.*) Helleborus, (*Hellebore.*)

CLASS XIV. DIDYNAMIA (*Four long Stamens, 2 short*), contains two ORDERS.

1 *Gymnospermia,*	Seeds naked in the bottom of the Calyx.	Glechoma, (*Ground Ivy.*) Lamium, (*Dead Nettle.*) Melissa, (*Baum.*)
2 *Angiospermia,*	Seeds contained in a Pericarp.	Antirrhinum, (*Snapdragon.*) Digitalis, (*Foxglove.*) Scrophularia, (*Water-Betony.*)

CLASS XV. TETRADYNAMIA (*Four long Stamens, 2 short*), contains two ORDERS.

Orders.	Examples.
1 *Siliculosa,* Seeds in a small short, or round pod.	Draba, (*Whitlow-Grass.*) Hesperis, (*Honesty.*) Thlaspi Bursa Pastoris, (*Shepherd's-Purse.*)
2 *Siliquosa,* Seeds in a long slender pod.	Cheiranthus, (*Wall Flower.*) Brassica, (*Cabbage.*) Sinapis, (*Mustard.*)

SS XVI. MONADELPHIA (*Filaments united at bottom into one Body*), contains five ORD

RDERS.				EXAMPLES.
ntandria	having	five	Stamina.	HERMANNIA, F.—WALTHERIA, F.—MELOCHIA, F.
ecandria	. . .	ten	Stamina.	GERANIUM, (*Crane's-bill.*)
ndecandria	. . .	eleven	Stamina.	BROWNEA, F.
odecandria	. . .	twelve	Stamina.	PENTAPETES, F.
lyandria	. . .	many	Stamina.	MALVA, (*Mallow.*)

LASS XVII. DIADELPHIA (*Ditto united at bottom into two Bodies*), contains four ORDE

ntandria	having	five	Stamina.	MONNIERIA, F.
xandria	. . .	six	Stamina.	FUMARIA, (*Fumitory.*)
tandria	. . .	eight	Stamina.	POLYGALA, (*Milk-wort.*)
ecandria	. . .	ten	Stamina.	PISUM, (*Pea.*) ULEX, (*Furze.*) TRIFOLIUM, (*Trefoil.*)

SS XVIII. POLYADELPHIA (*Ditto united at bottom into 3 or more Bodies*), contains 4 OR

ntandria	having	five	Stamina.	THEOBROMA, F.

DERS.		EXAMPLES.
decandria . . .	twelve Stamina.	MONSONIA, F.
sandria . . .	twenty Stamina.	CITRUS, F. (*Orange.*)
yandria . . .	many Stamina.	HYPERICUM, (*St. John's Wort.*)

CLASS XIX. SYNGENESIA (*Five united Anthers*), contains six ORDERS.

ygamia æqualis, when all the flosculi, or florets, are bissexual. LEONTODON, (*Dandelion.*) SONC (*Sow Thistle.*) HIERACIUM, (*Hawkweed.*) CARD (*Common Thistle.*)

ygamia superflua, when the florets in the centre are bissexual, and those in the circumference fe ANTHEMIS, (*Mayweed.*) BELLIS, (*Daisy.*) SENECIO, (*Gr sel.*) CHRYSANTHEMUM, (*Ox-eye Daisy.*) TUSSIL (*Colt'sfoot.*) INULA, (*Elecampane.*)

ygamia frustranea, when the florets in the centre are bissexual, and those in the circumference ba CENTAUREA, (*Blue Bottle Knapweed.*) HELIANTHU (*Sunflower.*) RUDBECKIA, F.

DERS. EXAMPLES.

ygamia necessaria, when the bissexual florets in the centre produce no seed, but the pistil flor
the circumference produce perfect seed. CALENDULA, F. (*I*
gold.) SILPHIUM, F.—GNAPHALIUM, (*Cudweed.*)
TOTIS, F.

lygamia segregata, many partial or proper calixes within the common calyx, separating the fl
or florets. ECHINOPS, F.—(*Globe Thistle.*) GUNDELIA,
SPERANTHUS, F.

lygamia monogamia, contains simple flowers (i. e. not compound,) which have their Anthers u
VIOLA, (*Violet.*) IMPATIENS, (*Touch-me-not. Balsam.* F.
BELIA, (*Cardinal Flower,* F.)

SS XX. GYNANDRIA (*Stamens growing out of the Pistil, or an elongated Receptacle*), co
eight ORDERS.

andria having two Stamina. ORCHIS. CYPRIPEDIUM, (*Ladies'-Slipper.*)
iandria . . . . three Stamina. SISYRINCHIUM, F.—FERRARIA, F.
trandria . . . four Stamina. NEPENTHES, F.

ERS.				Examples.
tandria	. . .	five	Stamina.	Passiflora, F. (*Passion Flower.*) Gluta, F.
andria	. . .	six	Stamina.	Aristolochi, F.—Pistia, F.
andria	. . .	ten	Stamina.	Kleinhovia, F.—Helicteres, F. (*Screw Tree.*)
ecandria	. . .	twelve	Stamina.	Cytinus, F.
andria	. . .	many	Stamina.	Arum, (*Cuckow Pint.*)

CLASS XXI. MONŒCIA contains eleven ORDERS.

andria	having	one	Stamen.	Chara. Zannichellia, (*Horned Pondweed.*) Elater F. (*Wild Cucumber.*)
ndria	. . . .	two	Stamina.	Lemna, (*Duckmeat.*) Anguria, F.
ndria	. . . .	three	Stamina.	Sparganium, (*Burr-Reed.*) Typha, (*Cats-tail.*) Care
andria	. . .	four	Stamina.	Urtica, (*Nettle.*) Morus, F. (*Mulberry.*) Buxus, (Betula, (*Birch.*)
tandria	. . .	five	Stamina.	Xanthium, (*Lesser Burdock.*) Amaranthus, F. (*Amara*
andria	. . .	six	Stamina.	Zizania, F.—Pharus, F.
tandria	. . .	seven	Stamina.	Guettarda.

DERS.	EXAMPLES.
olyandria more than seven Stamina.	FAGUS, (*Beech.*) SAGITTARIA, (*Arrow Head.*) Co (*Hazel.*) QUERCUS, (*Oak.*)
onadelphia Filaments united in one body.	PINUS, (*Fir.*) HURA, F. (*Sand box Tree.*) THUYA, F. (*Vitæ.*) CUPRESSUS, F. (*Cypress.*) RICINUS, F. (*Christi.*)
ngenesia Anthers united.	CUCUMIS, F. (*Cucumber.*) TRICHOSANTHES, F. (*Serpent C ber.* CUCURBITA, F. (*Gourd.*) MOMORDICA, (*Balsam A*
ynandria Stamina growing out of the Pistillum.	ANDRACHNE, (*Bastard Orpine.*) AGNEJA, F.

CLASS XXII. DIŒCIA contains fourteen ORDERS.

onandria	having	one	Stamen.	NAJAS, F.
iandria	. . .	two	Stamina.	SALIX, (*Willow.*) VALLISNERIA, F.
iandria	. . .	three	Stamina.	EMPETRUM, (*Crow Berries.*) OSYRIS, F. (*Poet's Cassia.*
trandria	. . .	four	Stamina.	HIPPOPHAE, (*Sea Buckthorn.*) VISCUM, (*Misletoe.*) My (*Gale.*)

DERS.			EXAMPLES.
ntandria . . .	five	Stamina.	CANNABIS, F. (*Hemp.*) HUMULUS, (*Hop.*) SPINACHI (*Spinach.*) PISTACHIA, F (*Pistachia Nut.*)
exandria . . .	six	Stamina.	TAMUS, (*Black Bryony.*) SMILAX, F. (*Rough Bindu* DIOSCOREA, F.
ctandria . . .	eight	Stamina.	POPULUS, (*Poplar.*) RHODIOLA, (*Rose Root.*)
nneandria . . .	nine	Stamina.	MERECURIALIS, (*Mercury.*) HYDROCHARIS, (*Frogbit.*)
ecandria . . .	ten	Stamina.	CARICA, F. (*Papaw.*) SCHINUS, (*Indian Mastich.*)
odecandria . .	twelve	Stamina.	MENISPERMUM, F. (*Moon Seed.*) DATISCA, F. (*Bastard H*
Ionadelphia Filaments united.			JUNIPERUS, (*Juniper.*) TAXUS, (*Yew.*) EPHEDRA, F. (*Sh* *Horsetail.*)
olyadelphia . .	many	Stamina.	CLIFFORTIA, F.
ngenesia Anthers united.			RUSCUS, (*Butcher's Broom.*
ynandria Stamina growing out of the Pistillum.			CLUTIA.

CLASS XXIII. POLYGAMIA contains three ORDERS.

RDERS. EXAMPLES.

onœcia Bissexual, and male or female flowers on the same plant. VALANTIA, (*Cross-wort.*)
(*Maple.*) PARIETARIA, (*Pellitory of the Wall.*) ATRI
(*Orach.*)

iœcia Bissexual, and male or female flowers on separate plants. FRAXINUS, (*Ash.*) DIOSPYI
(*Indian Date Plumb.*) PISONIA, F. (*Fingrigo.*)
DITSIA, F. (*Three-thorned Acacia.*)

riœcia Bissexual, male and female flowers, growing separately on three distinct plants of the same s
CERATONIA, F. (*Carob Tree.*) FICUS, F. (*Fig Tree.*)

CLASS XXIV. CRYPTOGAMIA contains four ORDERS.

ilices comprehending the FILICES, (*Ferns*) OPHIOGLOSSUM, (*Adder's Tongue.*) EQUISETUM, (
tail.) PILULARIA, (*Pepper Grass, &c.*)

usci comprehending the MUSCI, (*Mosses of different kinds.*)

lgœ including the FUCUS, (*Sea Weed.*) JUNGERMANNIA, &c.

ungi containing the AGARICUS, (*Mushroom.*) LYCOPERDON, (*Puff Ball.*) and other Plants of that

epaticœ, possessing the LIVERWORTS.

OBSERVATIONS ON THE CLASSES AND ORDERS.

The immortal SEXUAL SYSTEM of Linnæus, whose transcendent merits soon made it triumphant over every other system, is founded upon the beautiful doctrine of the SEXES OF PLANTS. According to this system all known plants are distributed into different CLASSES, ORDERS, GENERA, and SPECIES. The CLASSES are twenty-four, and are derived from the consideration of 1. The NUMBER. 2. The NUMBER and ORIGIN. 3. The NUMBER and PROPORTION. 4. The UNION. 5. The SEPARATION, and 6thly, The CONCEALMENT of the Stamina.

1. CLASSES *derived from the consideration of the Number of Stamina.*

The names of the first *eleven* classes are derived from the Greek words ανηρ, ANER, *a male,* ανδρος, ANDROS, the genitive case, and some Greek word prefixed implying *number,* as

Class I. MONANDRIA, from μονος, MONOS, *one,* and ανηρ, ANER, *a male.*

Class II. DIANDRIA, from δις, DIS, *two,* and ανηρ, ANER, *a male.*

Class III. TRIANDRIA, from τρεις, TREIS, *three,* and ανηρ, ANER, *a male.*

Class IV. TETRANDRIA, from τεσσαρες, TESSARES, *four*, and ανηρ, ANER, *a male*.

Class V. PENTANDRIA, from πεντε, PENTE, *five*, and ανηρ, ANER, *a male*.

Class VI. HEXANDRIA, from εξ, EX, *six*, and ανηρ, ANER, *a male*.

Class VII. HEPTANDRIA, from επτα, HEPTA, *seven*, and ανηρ, ANER, *a male*.

Class VIII. OCTANDRIA, from οκτω, OCTO, *eight*, and ανηρ, ANER, *a male*.

Class IX. ENNEANDRIA, from εννεα, ENNEA, *nine*, and ανηρ, ANER, *a male*.

Class X. DECANDRIA, from δεκα, DEKA, *ten*, and ανηρ, ANER, *a male*.

Class XI. DODECANDRIA, from δωδεκα, DODEKA, *twelve*, and ανηρ, ANER, *a male*.

Here we may remark, that Class III. TRIANDRIA, contains the natural family of the GRASSES, (*Gramina*) plants possessing a simple leaf, a jointed stem, and a husky calyx, terminating usually with an arista, awn, or beard, and producing one seed.

The great solicitude of *Nature* for the preservation of grasses is evident from this; that the more the leaves are consumed, the more the roots increase. The great *Author* of *nature* designed that the delightful verdure of these plants should cover the surface of the earth, and that they should afford nourishment to an almost infinite number of animals. And what increases our astonishment most, is, that although the GRASSES constitute the principal food of herbivorous animals, yet, whilst they are left at liberty in the pasture, they leave untouched the culm which support the flowers; that the seeds may ripen and sow themselves. And on lofty mountains, where the summer heats are hardly sufficient to ripen the seeds, the most common Grasses are, the FESTUCA *ovina*, the POA *alpina*, and the AIRA *cæspitosa*, all which are viviparous, and consequently propagate themselves by bulbs without seeds.

In general, the leaves furnish pasturage for cattle; the smaller seeds are food for birds, and the larger for men. But some are preferred to others; as the FESTUCA for sheep; the POA for Cows; the PHALARIS for Canary-birds and Linnets; the AVENA for Horses; the SECALE HORDEUM and TRITICUM for Man.

Variety of Insects too derive their nourishment from grasses; as the *Papilio mæra, Pap. Ægeria, Pap. Galatea, Pap. Jurtina, Pap. Cinxia, Phalæna quercifolia, Ph. Potatoria, Ph. culmella, Chrysomela Graminis,* and several others.

Class IV. TETRANDRIA, contains several AGGREGATE FLOWERS, (*aggregatæ,* which are included within one common calyx, as in the compound flowers, but differ from these in having four stamina, the anthers distinct from each other, and the corolla above the germen:

It also contains another natural order of plants, the STELLATED (*stellatæ,*) from the manner of growth of the leaves, several together being placed in sets, round the stalk, radiating together like the glory of a star, and each set rising regularly one above the other.

It may be here just noticed, that the stamens in this class are 4, and *all of the same length;* whereas in the class DIDYNAMIA, which is likewise composed of flowers of 4 stamens, the stamens are *unequal in length*, 2 of them being long and 2 short.

Class V. PENTANDRIA, contains the natural order of the EARLY *(Preciæ)*, named so from their flowering early, and the ROUGH-LEAVED *(Asperifoliæ)*, from the roughness of the leaves, also the LURID *(Luridæ)*, called so from their gloomy aspect, and disagreeable scent, being plants highly poisonous.

This class contains likewise the natural order of UMBELLIFEROUS PLANTS *(umbellatæ)*, whose flowers are produced in *umbels*, which are peduncles or flower-stalks proceeding from one common centre, each terminated by a flower. This is then called the *general*, or *universal umbel.* But not unfrequently these thread-like peduncles, instead of bearing at their extremities the flowers, are themselves the fulcra, or points of origin of other smaller, or *partial umbels.* The flower itself is distinguished by five small petals usually unequal, and two seeds joined at top and separate below.

This tribe of plants is subdivided by some authors into such as have both a general and partial INVOLUCRE, such as have only a partial one, and such as have none at all; but as the INVOLUCRES are not very constant, and in some species are apt to fall off, and as the corollas, stamens, and pistils, are so much alike as to afford but little assistance in the determination of the genera and species, the student is desired to pay particular attention to the *seeds*, which furnish the most unequivocal generic characters, and often come powerfully in aid of the specific character. On this account, it is necessary when examining these to gather some specimens in which the seeds are nearly ripe, and others but just opening into flowers.

The umbelliferous plants in dry situations are aromatic and carminative; in moist ones, acrid, and sometimes poisonous. The greatest virtues are contained in the seeds and roots. Many of them are eaten at our tables, as the roots of CARROT and PARSNEP, and the leaves of CELERY. The seeds of CORIANDER and CARAWAY are used in confectionary.

Class VI. HEXANDRIA, contains the natural tribe of the LILIES (*Liliaceæ*).

The flowers of this class contain six stamens, all of the *same length*, whereas in the TETRADYNAMIA class, the stamens though six in number, are *unequal in length*, 4 of them being long, and 2 of them short; but as the difference in their length is not always very obvious, it may further be remarked, that in the Hexandria class, *none* of the flowers have 4 petals, as is the case with *all* those of the class TETRADYNAMIA.

The Bulbous Roots in this class are some of them noxious, as those of the Narcissus, the Hyacinthus, and the Fritillaria; others are corrosive, as Allium, but by roasting or boiling, they lose great part of their acrimony.

Although Class XI. Dodecandria implies by the name twelve stamina, yet it includes from twelve to nineteen inclusive, and if more than nineteen, inserted on the receptacle, the flower falls under class XIII. Polyandria; if more or even less than twenty inserted on the calyx or corolla, under Class XII. Icosandria.

2. *Classes derived from the consideration of the Number and Insertion of Stamina.* The appellations of these have the same origin, as in the classes above, thus:—

Class XII. Icosandria, from ικοσι, IKOSI, *twenty*, and ανηρ, ANER, *a male.*

Class XIII. Polyandria, is so called from πολυς POLUS, *many*, and ανηρ, ANER, *a male.*

Class XII. Icosandria, is so called from the number of males, usually being twenty, though very frequently there is observed a greater number. In this class are to be found the *fruit-trees.* The calyx in them is monophyllous, concave, fleshy, and the stamina are inserted into it, or the corolla, which is usually five-petalled.

Class XIII. Polyandria, on the contrary, instead of possessing edible fruits, contain chiefly plants possessing poisonous qualities.

The flowers of this class have, as its title implies, *many* stamens, that is, from 20 to 100 or more, so that it is unnecessary to attempt to count them, further than to be satisfied that they may amount to 20 or upwards. The situation of the stamens, as standing UPON THE RECEPTACLE, is sufficient to distinguish it from the preceding class, in which they do not stand upon the receptacle, but either upon the sides of the Calyx or else upon the Petals. A regard to this circumstance will be a surer guide than an attention merely to the NUMBER of the stamens. If the eye does not at once determine the exact situation of the stamens, carefully and slowly pull off the petals, and the segments of the calyx; if the stamens remain in their place, they may then be considered as growing upon their receptacle.

3. *Classes derived from the consideration of Number and Proportion.*

Class XIV. DIDYNAMIA, from δις, DIS, *two*, and δυναμις, DUNAMIS, *power*.

Class XV. TETRADYNAMIA, from τεσσαρες, TESSARES, *four*, and δυναμις, DUNAMIS, *power*.

Class XIV. DIDYNAMIA, contains the *labiate* or *lipped-flowers*, from LABIUM, *a lip*, which branches into two kinds, 1. *Ringent*, from RINGERE, to gape, which is a monopetalous tubular corolla, whose border is divided into two parts, called the *upper* and *under-lip*: The upper lip is by some called the *helmet*, and the under the *beard;* the opening between these two lips is called the *hiatus*, or *gape;* the entrance into the tube, the *throat*; and the upper part of the tube, the *neck*—

and 2. *Personate*, from PERSONA, a mask, which has the appearance of the snout of some animal, the two lips being closed, therefore there is no *hiatus* or *gape*. The seeds of the former are naked, of the latter capsuled. And, lastly, the ringent include the natural order of the *verticillate*, VERTICILLATI, plants so called from the flowers being placed in *whorls* round the stem, add to which the leaves are in pairs, and the stalks square. This natural tribe is very remarkable for giving out a strong and in some instances a pleasant smell.

Class XV. TETRADYNAMIA, contains the *cruciform* natural tribe of plants, the (*cruciferæ*) from CRUX, CRUCIS, *a cross*, being four equal petals, placed in the form of a X. These are fastened to the receptacle, within the calyx, by a pale narrow linear part called the *unguis*, or *claw*, and spreads out at right angles to it, into a broad flat coloured part, called the *lamina*.

The plants of this Class are universally found to be *Antiscorbutic*, their taste is acrid and watery, they lose most of their virtues by drying. None of them are poisonous.

In moist situations, and wet seasons, they are most acrimonious. Thus the COCHLEARIA *Armoracia*, (Horse-radish) growing near water, is so very acrid, that it can hardly be used; and BRASSICA *Rapa*, (Turnip) whose root in a dry sandy soil is so succulent and sweet, in wet stiff lands is hard and acrimonious.

4. *Classes derived from the consideration of Union.*

Class XVI. MONADELPHIA, from μονος, MONOS, *one*, and αδελφος, ADELPHOS, *a brother*.

Class XVII. DIADELPHIA, from δις, DIS, *two*, and αδελφος, ADELPHOS, *a brother*.

Class XVIII. POLYADELPHIA, from πολυς, POLUS, *many*, and αδελφος, ADELPHOS, *a brother*.

Class XIX. SYNGENESIA, from συν, SUN, *together*, and γενεσις, GENESIS, *generation*.

Class XX. GYNANDRIA, is from γυνη, the female, most conspicuous here, and ανηρ, the male.

Class XVI. MONADELPHIA, contains the *natural* order, the COLUMN-BEARING plants (*columniferæ*); from the receptacle standing up in the centre of the flower like a column, encompassed by the webbed, or united, filaments, forming one body.

In this class the filaments are all united together at the bottom, but separate at top.

The petals are truly a continuation of the cylindrical sheath, formed by the united filaments, which encloses the styles and germens as it descends, and which afterwards spreads out into petals.

Class XVII. DIADELPHIA, contains the papilionaceous flowers (*papilionaciæ*), a truly natural tribe, a name derived from papilio, a butterfly, which this flower is supposed to resemble. It has four irregular petals, the upright one is called the *banner*, the side ones, the *wings*, and the under one the *keel*. There are nine stamina united, and one above separated in most instances by the slightest art, or by the swelling of the legume, or pod.

In some cases all the ten adhere into one body, when the structure of the flower determines the class, which is perfectly natural and singular, being generally obliquely pendant.

The SEEDS of this class furnish food for men, and other animals: they are farinaceous and flatulent. The LEAVES are food for cattle. None of them are poisonous.

Dr. Pulteney, in a note added to his translation of the Pan Suecicus, says, " A general view of this class, " shews at once how very acceptable its plants are to " almost all cattle; cows and sheep refused none, and " horses not more than three, out of the whole number " with which they were tried. They afford the richest " food for cattle, and are cultivated in divers parts of " Europe, with all possible attention. With us, the " TRIFOLIUM, *pratense*, (or *Clover*), is mostly sown. " Lately some trials have been made with the HEDYSARUM *Onobrychis*, (*Saintfoin*), and some have " thought that it answers better than clover. I say nothing of the exotic *Lucern*. Among these plants the " ANTHYLLIS *vulneraria* is particularly acceptable to " sheep; insomuch, that the separate cultivation of it " has been recommended, but it will not succeed well " except on chalky grounds." (See Dr. Pulteney's judicious work, entituled, " A General View of the Life and

Writings of Linnæus," of which a most superb and highly enriched new edition has been published by the learned and ingenious Doctor Maton.)

Class XVIII. Polyadelphia, has the filaments united at bottom into one or more parcels, hence they form an appearance like the camel's-hair pencil. If you were not to attend to this character, you might easily suppose these plants to belong to the Class XIII. Polyandria; for there are here no natural families, as in the last class, announcing immediately upon the first sight to what class they belong.

Class XIX. Syngenesia, contains the natural family of compound flowers (*Compositi*), being made up of an assemblage of small-flowers, or florets. Compound flowers are easily distinguished, by considering that the corolla is either *tubular* or *ligulate*, and that the whole flower is composed of such florets, all *tubular*, or all *ligulate*, or a mixture of *both* kinds, and that the anthers, which are five, form a sheath round the pistillum. The florets in the centre are styled the *Disk*, in the circumference the *Ray*, and such are called *Radiate Flowers*, as the Bellis Perennis (*Daisy*), &c. and should any one of these florets be removed, a disfiguration takes place. These possess also a *common Calyx*, and a *common Receptacle*, which ends with a bifid stigma. *Syngenesia* is a kind of connecting link, betwixt the other classes, and the three just now going to be enumerated, for the different sexes are joined in the radiated compound flower.

Class XX. Gynandria, strikes the beholder by the monstrous appearance of the fructification, and contains the natural tribe of ORCHISES (*orchideæ*), and the beautiful tribe PASSIFLORA (*Passion-flower*).

V. *Classes derived from the consideration of separation.*

Class XXI. MONŒCIA, from μονος, MONOS, *one*, and οικος, OIKOS, *a house*.

Class XXII. DIŒCIA, from δις, DIS, *two*, and οικος, OIKOS, *a house*.

Class XXIII. POLYGAMIA, from πολυς, POLUS, *many*, and γαμος, GAMOS, *marriages*.

In Classes XXI. MONŒCIA, and XXII. DIŒCIA, we find no complete flowers at all, (flowers furnished with stamina and pistilla in the same corolla) but either stameniferous, or pistilliferous flowers, and as these are placed either upon the same plant, or on different plants of the same species, we have the characters of these classes. As in these unisexual plants, the stamens and pistils are situated at a distance from each other, so that the facility of an intercommunication between them is certainly less than in the bissexual flowers, where they are situated within the same cover (calyx or corolla), Nature has wisely ordered it, that in these particular plants they shall, in general, make their appearance before the full evolution of the leaves, so that the fecundation is not hindered by the intervention of the leaves. This is known to be the case in the MULBERRY, the MISLETOE, the ALDER, the BIRCH, the HORNBEAM, the BEECH, the OAK, the HAZEL, the WALNUT, the WILLOW, the SEA BUCKTHORN (*Hippophae*), the DUTCH MYRTLE (*Myrica*), the POPLAR, the ASH, and the DOG'S MERCURY (*Mercurialis*).—How impressively does this fact mark the hand of an intelligent Being, in the construction and government of the world!

Class XXIII. POLYGAMIA, is established upon the same views of Nature, as in some of the compound flowers, consisting of *complete* flowers, accompanied by one or both sorts of the other individuals, (*incomplete* flowers) either upon the same plant, or on remote individuals of the same kind.

The wise provision of NATURE in the *marriage of plants*, demands a separate consideration. She is continually raising up difficulties and overcoming them, making botanical science an interesting and amusing occupation of the mind. At every step, it leads us to remark and admire the bounty, the wisdom, and power of the Omnipotent Creator.

VI. *Class derived from the consideration of concealment.*

Class XXIV. CRYPTOGAMIA, from κρυπτος, KRUPTOS, concealed, and γαμος, GAMOS, marriage.

Many doubts exist, whether these have sexes or not. HEDWIG supposes he has discovered stamina and pistilla, but others deny this, and think they propagate by *buds*, or *offsets*.

Mosses and ferns, by the inconsiderate mind, are generally deemed an useless or insignificant part of the creation. That they are not is evident only from hence; that he who made them has formed nothing in vain, but, on the contrary, has pronounced all his creation to be *good.* Many of their uses we know; that they have many more, which we know not, is unquestionable, since there is probably no one thing in the universe of which we can dare to assert that we know *all* their uses. Thus much we are certain of with respect to mosses, that as they flourish most in winter, and at that time cover the ground with a beautiful green carpet, in many places which would otherwise be naked, and when little verdure is elsewhere to be seen, so at the same time they shelter and preserve the seeds, roots, gems, and embryo plants of many vegetables, which would otherwise perish; they furnish materials for birds to build their nests with; they afford a warm winter's retreat for some quadrupeds, such as bears, dormice, and the like; and for numberless insects, which are the food of birds and fishes, and these again the food or delight of men. Many of them grow on rocks and barren places, and rotting away, afford the first principles of vegetation to other plants, which could never else have taken root there. Others grow in bogs and marshes, and, by continual increase and decay, fill up and convert them either into fertile pastures, or into peat bogs, the source of inexhaustible fuel to the polar regions.

They are applicable also to many domestic purposes. The *Lycopodiums* are some of them used in dying of yarn, and in medicine; the *Sphagnum* and *Polytrichum* furnish convenient beds for the *Laplanders;* and the *Hypnums* are used in tiling of houses, stopping crevices in walls, packing up of brittle wares, and the roots of plants for distant conveyance.

To which may be added, that all in general contribute entertainment and agreeable instruction to the contemplative mind of the naturalist, at a season when few other plants offer themselves to his view.

The *fungi* have been suspected by some to be like sponges and corals, the habitations of some unknown living beings, and being alkalescent, have been classed in the animal kingdom, but they are known to produce seeds, from which perfect plants have been raised. And the celebrated Hedwig, by great dexterity of dissection, and by using microscopes of very highly magnifying powers, assures us that he has discovered both stamina and pistilla not only in this order of plants, but in the four others.

ORDERS.

The orders of the first *thirteen* classes are founded on the *number* of Styles, or where this part is wanting, on that of the Stigmas, thus—

Order I. Monogynia, one Pistillum, is from μονος, monos, *one*, and γυνη, gune, *a female*, or in other words *one* style, or *one* stigma.

Order II. Digynia, two Pistilla, from δις, dis, *two*, and γυνη, gune, *a female.*

Order III. Trigynia, three Pistilla, from τρεις, treis, *three*, and γυνη gune, *a female.*

Order IV. TETRAGYNIA, four Pistilla, from τετρας, TETRAS, *four*, and γυνη, GUNE, *a female.*

Order V. PENTAGYNIA, five Pistilla, from πεντε, PENTE, *five*, and γυνη, GUNE, *a female.*

Order VI. HEXAGYNIA, six Pistilla, from εξ, HEX, *six*, and γυνη, GUNE, *a female.*

Order VII. HEPTAGYNIA, seven Pistilla, from επτα HEPTA, *seven*, and γυνη, GUNE, *a female.*

Order VIII. OCTAGYNIA, eight Pistilla, from οκτω, OKTO, *eight*, and γυνη, GUNE, *a female.*

Order IX. ENNEAGYNIA, nine Pistilla, from εννεα, ENNEA, *nine*, and γυνη, GUNE, *a female.*

Order X. DECAGYNIA, ten Pistilla, from δεκα, DEKA, *ten*, and γυνη, GUNE, *a female.*

Order XI. DODECAGYNIA, twelve Pistilla, from δωδεκα, DODEKA, *twelve*, and γυνη, GUNE, *a female.*

Order XII. POLYGYNIA, many Pistilla, from πολυς, POLUS, *many*, and γυνη, GUNE, *a female.*

Class XIV. DIDYNAMIA, has its two orders. A want, or the possession of a seed vessel, for the styles or stigmas here, are not able to furnish the contrast desired, being constantly one.

Order I. GYMNOSPERMIA, naked Seeds, from γυμνος, GUMNOS, *naked*, and σπερμα, SPERMA, *seed.*

Order II. Angiospermia, covered or capsuled Seeds, from αγγειος, AGGEIOS, αγγος, AGGOS, *a vessel*, and σπερμα, SPERMA, *seed.*

Class XV. Tetradynamia, has its two orders, viz.

Order I. Siliculosa, a round Pod, from silicula, *a little pod.*

Order II. Siliquosa, a long Pod, from siliqua, *a long pod*, and this from silo, *a nose turned up*, being usually curved.

The orders of Class XVI. Monadelphia; Class XVII. Diadelphia; and Class XVIII. Polyadelphia, are founded on the characters of the former classes, thus—Order I. is Pentandria, and so on to Order V. Polyandria. In Class XVIII. Polyadelphia, we have even Order III. Icosandria, which includes the Citrus, the *Orange*, for the consideration of *union of filaments* supersedes that of either *number alone*, or of *number and insertion*, and the classical character was found here very convenient to form orders; especially as Class XVII. Diadelphia, presented no variety in the pistilla. In our Reformed Sexual System, we have endeavoured to preserve the classical characters distinct to themselves, and placed these classes of Linnæus, as orders to the primary classes, which they naturally divide.—*Vide*, our Reformed Sexual System, p. 74.

The order of Class XIX. Syngenesia, likewise could not be founded on the pistils, there being but one, but are constituted from the *disposition* of the *florets*, thus,—

Order I. POLYGAMIA, ÆQUALIS, *equal marriage*, from πόλυς, POLUS, *many*, and γαμός, *marriage*, implies, that the florets are numerous, and ÆQUALIS, *equal*, means that each flower is equally possessed of the two sexes, the florets are all alike, either ligulate or tubular florets.

Order II. POLYGAMIA, SUPERFLUA, *superfluous Polygamy*, means that the florets in the *disk* (centre), being bissexual, produce seeds, and those in the *ray* (circumference), which are pistilliferous, are superfluous as the former were sufficient to continue on the species, and are hence styled by Linnæus, in his system, as *concubines*.

Order III. POLYGAMIA, FRUSTRANEA, *needless Polygamy*, is so called from the florets in the *ray* being devoid of any sex, and their existence seemingly useless. But their petals serve as a defence for the central florets, by closing over them.

Order IV. POLYGAMIA, NECESSARIA, *necessary Polygamy*, implies that the florets in the *disk* are stameniferous, and in the *ray* pistilliferous; and if those in *disk* were absent, there would be no seeds, hence the necessity of the pistilliferous flowers in the *ray*.

Order V. POLYGAMIA, SEGREGATA, *separate Polygamy*, is where the florets are all equal, that is, bissexual, as with the first order, but *separate*, SEGREGATA, by having *a calyx to each floret,* which separates the florets individually.

Order VI. POLYGAMIA, MONOGAMIA; *many marriages, one marriage,* from μονος, MONOS, *one,* and γαμος, GAMOS, *marriage,* is a contradiction of terms, but explains to us Linnæus's idea of POLYGAMIA, *i. e.* many florets, producing a compound flower, and MONOGAMIA therefore means a simple flower, not having a ligulate or tubular petal, or clustered together on the same receptacles, but standing singly, and having the classical character of the compound florets. Dr. Smith has discarded this order altogether, for very good reasons. "The order MONOGAMIA," says this most distinguished botanist, "I have presumed to abolish, because the union of the anthers is not constant throughout the species of each genus referred to it, witness LOBELIA, and VIOLA; while, on the contrary, several detached species in other classes have united anthers, as GENTIANA. These reasons, which show the connection of the anthers of a simple flower to be neither important in nature, nor constant as an artificial character, are confirmed by the plants of this whole order being natural allies of others of the fifth class, and totally discordant, in every point, from the compound syngenesious flower." *Introduction to Physiological and Systematical Botany,* p. 400;—a rich mine of botanical knowledge!

To these remarks may be added, that the *heaths,* ERICAS, have their anthers united, and have eight stamens, each filament bearing two oblong, pointed *half* capsules, hence called *bicornes,* which, uniting with their neighbours, form *whole* capsules, and disperse their farina by separation; so the BUTOMUS UMBELLATUS, the *flowering rush,* having nine stamens, form two parcels of four, very closely united together at first; the MEADIA has five anthers united, like the *Heath*, the SOLANUM, also five united anthers, &c. so that this class very naturally falls into the rest, as will be seen in our REFORMED SEXUAL SYSTEM.

Class XXI. MONŒCIA, has for its orders all the classes of *number*, also the class of *union of filaments when forming one set*, that of *union of anthers* and *union with the pistillum*, vide, our Synthesis of Classes and Orders, p. 39.

Class XXII. DIŒCIA, the same; for, like AARON'S rod, which swallowed up all the rest, the consideration of *sexes apart* overcomes all other ideas. Vide p. 40, each class rising *superior* to the preceding.

Class XXIII. POLYGAMIA, hence takes its orders: Order I. MONŒCIA, Order II. DIŒCIA, and Order III. TRIŒCIA, the last is supposed to exhibit *bissexual, male* and *female flowers*, growing separately, on three distinct plants, of the same species, from τρεις, TREIS, *three*, and οικος, OIKOS, *a house.*

Class XXIV. CRYPTOGAMIA, contains the natural orders expressed in our SYNTHESIS, p. 42.

APPENDIX PALMÆ. The natural order of PALMS was so little understood when Linnæus formed his systematic arrangement of plants, and so few of their flowers had been then scientifically examined, that he was under the necessity of leaving this order as an appendix to his system, till it could be better investigated. Late observations show PALMS to have, for the most part, six stamens, rarely three or nine, with three or six petals, and one or three styles, which last are sometimes in the same flowers with the stamens, sometimes in a separate one, but both flowers agree in a peculiar structure, which evinces how discordant must be an *artificial* from a *natural arrangement;* to use the words of an *old botanist,* professor Martyn, " he must strive in vain, who shall ever think to reconcile the two together."

THE

REFORMED

SEXUAL SYSTEM.

THE REFORMED SEXUAL SYSTEM.

BY DR. THORNTON.

> Desine quapropter *novitate* exterritus *ipsa*
> Expuere animo *rationem*: sed magis acri
> Judicio perpendere, et si tibi *vera* videtur
> *Dede manus.*
>
> LUCRET.

CLASSES.

I. *Classes taken from the Number of Stamina.*

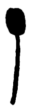
I.	*Monandria*	one Stamen.
II.	*Diandria*	two Stamina.
III.	*Triandria*	three Stamina.
IV.	*Tetrandria*	four Stamina.
V.	*Pentandria*	five Stamina.
VI.	*Hexandria*	six Stamina.
VII.	*Heptandria*	seven Stamina.
VIII.	*Octandria*	eight Stamina.
IX.	*Enneandria*	nine Stamina.
X.	*Decandria*	ten Stamina.
XI.	*Dodecandria*	12 to 19 Stamina.
XII.	*Polyandria*	20 or more Stamina.

I. *A Class taken from the obscurity of the Stamina.*

XIII.	*Cryptogamia*	concealed Stamina.

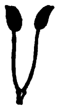
CLASSES of the Reformed Sexual System,
Taken from the Number of Stamina only.

I.



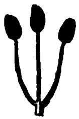
1 Stamen.
(Monandria)

II.



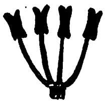
2 Stamina.
(Diandria)

III.



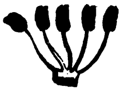
3 Stamina.
(Triandria)

IV.



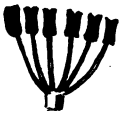
4 Stamina.
of equal length
(Tetandria)

V.



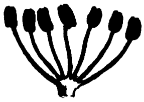
5 Stamina.
(Pentandria)

VI.



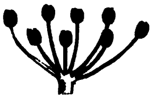
6 Stamina,
of equal length
(Hexandria)

VII.



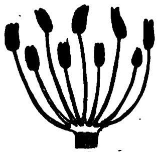
7 Stamina.
(Heptandria)

VIII.



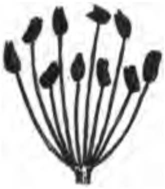
8 Stamina.
(Octandria)

IX.



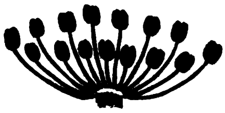
9 Stamina.
(Enneandria)

X.



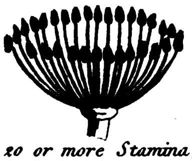
10 Stamina.
(Decandria)

XI.



12 to 19 Stamina.
(Dodecandria)

XII.



20 or more Stamina,
arising from the Receptacle.
(Polyandria)

XIII.

No visible Stamina.
(Cryptogamia.)

NB. The Stamina are reckoned by the Number of Anthers.

Henderson del.

Mazel sc.

London Published by Dr. Thornton Augst. 1.1810.

First,
ORDERS taken from the Number of Pistilla.

Ordinary Flowers.

I.

1 Pistillum.
(Monogynia)

II.

2 Pistilla.
(Digynia)

III.

3 Pistilla.
(Trigynia)

IV.

4 Pistilla.
(Tetragynia)

V.

5 Pistilla.
(Pentagynia)

VI.

6 Pistilla.
(Hexagynia)

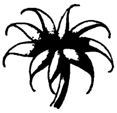
VII.

7 Pistilla.
(Heptagynia)

VIII.

8 Pistilla.
(Octogynia)

IX.



9 Pistilla.
(Enneagynia)

X.

10 Pistilla.
(Decagynia)

XI.

12 to 20 Pistilla.
(Dodecagynia)

XII.

Many Pistilla.
(Polygynia)

NB. The Pistilla are reckoned by the Number of Styles.

Henderson del. *Mazel sculp.*

London. Published by Dr. Thornton. Aug. 1. 1810.

ORDERS.

I. *Orders taken from the number of Pistilla.*

I.	*Monogynia*	one Pistillum.
II.	*Digynia*	two Pistilla.
III.	*Trigynia*	three Pistilla.
IV.	*Tetragynia*	four Pistilla.
V.	*Pentagynia*	five Pistilla.
VI.	*Hexagynia*	six Pistilla.
VII.	*Heptagynia*	seven Pistilla.
VIII.	*Octogynia*	eight Pistilla.
IX.	*Enneagynia*	nine Pistilla.
X.	*Decagynia*	ten Pistilla.
XI.	*Dodecagynia*	12 to 19 Pistilla.
XII.	*Polygynia*	20 or more Pistilla.

II. *Orders taken from some curious particularity in the Stamina.*

XIII.	*Didynamia*	four Stamina, two long, two short.
XIV.	*Tetradynamia*	six Stamina, four long, two short.
XV.	*Icosandria*	twenty or more Stamina inserted on the Calyx, or Corolla.
XVI.	*Monadelphia*	filaments united, in one body.
XVII.	*Diadelphia*	filaments united, forming two bodies.
XVIII.	*Polyadelphia*	filaments united, forming 3, or more bodies.
XIX.	*Syngenesia*	five anthers, united.
XX.	*Gynandria*	Stamina, arising from the Pistil.
XXI.	*Monœcia*	Stamina apart from the Pistil, on the same plant.
XXII.	*Diœcia*	Stamina arising from the Pistil on different Plants.
XXIII.	*Polygamia*	bissexual and unisexual flowers.

Class CRYPTOGAMIA has the Natural Orders.

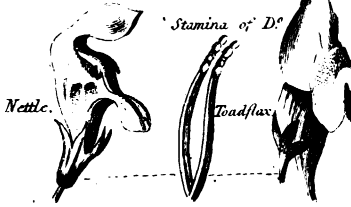
I. *Filices.* II. *Musci.* III. *Algæ.* IV. *Fungi.*

Secondly

ORDERS derived from certain Peculiarities in the Stamina,

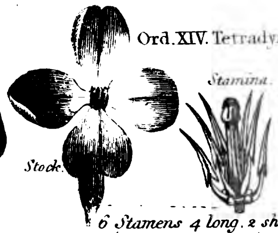
Peculiar Flowers.

Order XIII. Didynamia.



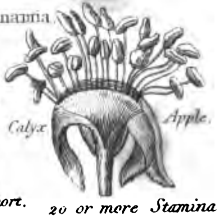
4 Stamens, 2 long, 2 short.
(Didynamia)

Ord. XIV. Tetradynamia.



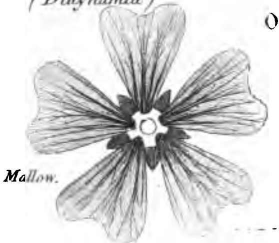
6 Stamens 4 long, 2 short.
(Tetradynamia)

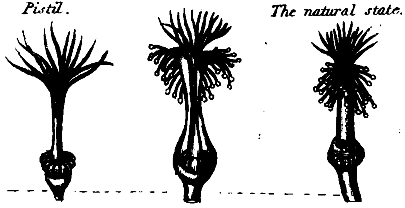
Ord. XV. Icosandria.



20 or more Stamina inserted into the Calyx or Corolla.
(Icosandria)

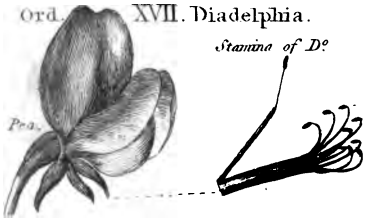
Ord. XVI. Monadelphia.





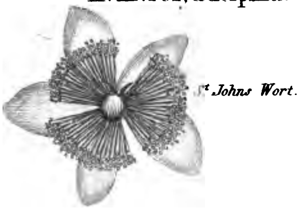
Filaments united in one Body.
(Monadelphia)

Ord. XVII. Diadelphia.



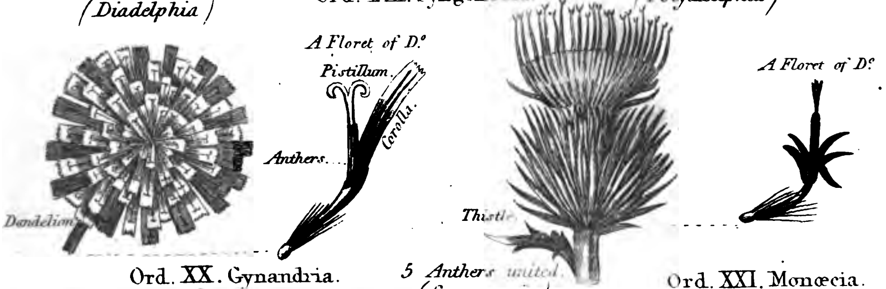
Filaments united in 2 bodies.
(Diadelphia)

XVIII. Polyadelphia.


S.t Johns Wort.

Filaments united in 3 or more bodies.
(Polyadelphia)

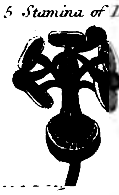
Ord. XIX. Syngenesia.



5 Anthers united.
(Syngenesia)

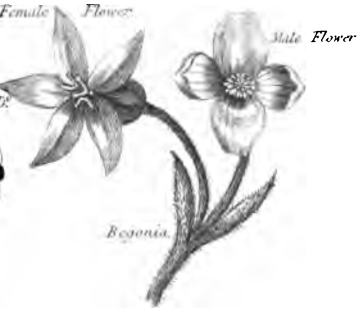
Ord. XX. Gynandria.

Passion-flower.



Stamina arising from the Pistil,
or from a Pillar elevating the same.
(Gynandria)

Ord. XXI. Monœcia.



Male & Female flowers,
growing on the same plant.
(Monœcia)

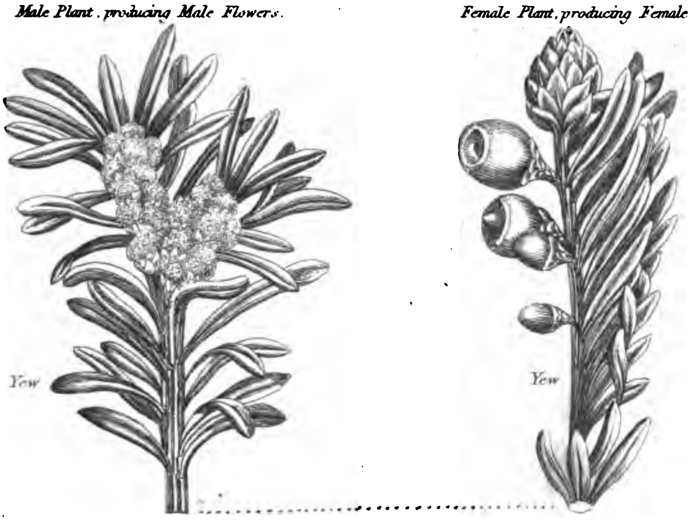
Henderson del.
London, Published by D.r Thornton, Aug.t 1 1810.
Mazel sculp.

BIBLIOTHECA BODLEIANA

Plate 3.

Continuation of Consideration II.

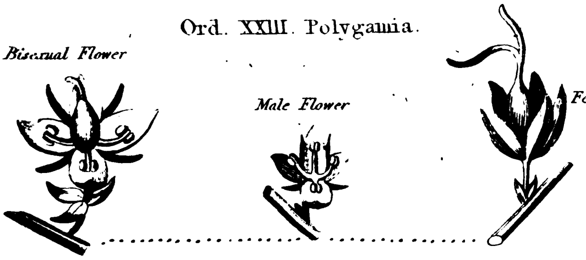
Ord. XXII. Diœcia.



Male Plant, producing Male Flowers. *Female Plant, producing Female Flowers.*

Stamina apart from the Pistil, on different Plants.

Ord. XXIII. Polygamia.



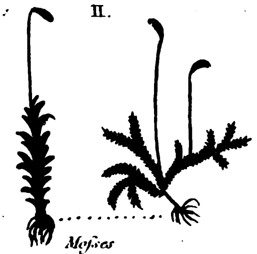
Bisexual Flowers, with either Male, or Female Flowers or both sorts.

Ord. XXIV. Cryptogamia.

I.

Ferns (Filices)

II.



Mosses (Musci)

III.

Sea-weeds (Algæ)

IV.

Mushrooms (Fungi)

These four last are the orders of Cryptogamia

[illegible] del. [illegible]

BIBLIOTHECA BODLEIANA

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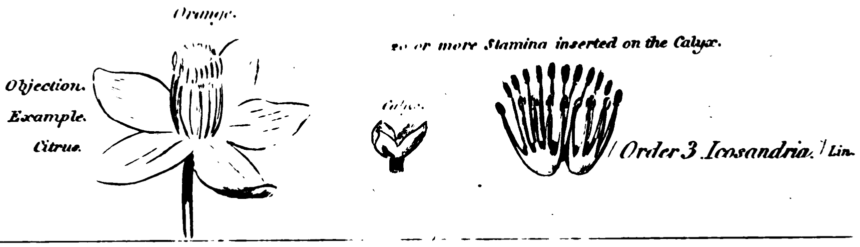
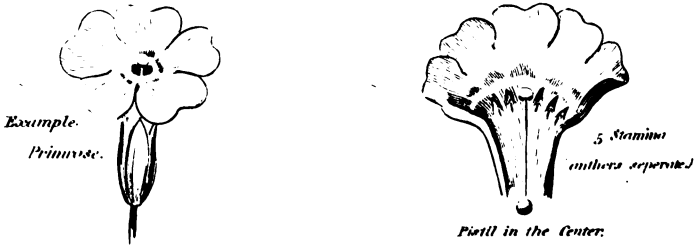
Remarks on the Sexual System.

To face p. 79.

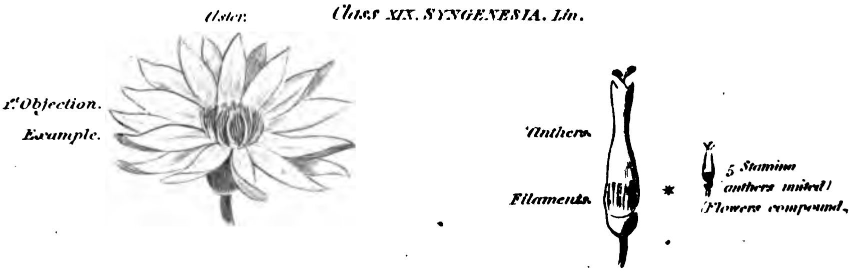
Class XVIII. POLYADELPHIA. Lin.

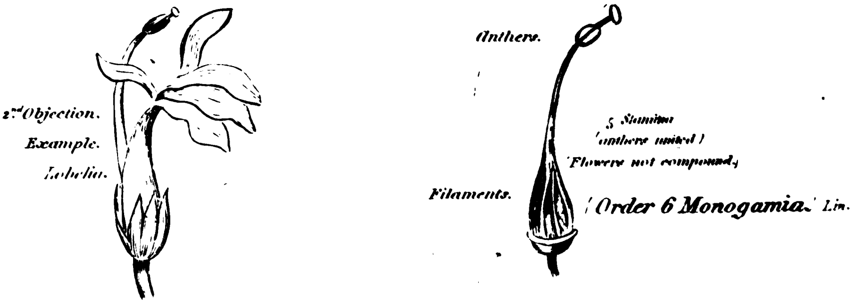


Class V. PENTANDRIA. Lin.



Class XIX. SYNGENESIA. Lin.





Henderson del. Cooper sculp.

London, Published as the Act directs, by Dr Thornton, Dec.r 1. 1810.

REMARKS

On some Parts of the Sexual System, with the Reasons for our Reform.

I. The Class IV. TETRANDRIA, being a numerous one, LINNÆUS chose to separate it into two, and an opportunity presented itself from the consideration of the differences which occur in plants having four stamina, from the *proportion* of these. DIDYNAMIA expresses this difference; and the flowers are either *ringent*, or *personate*, a *natural tribe.* But as *all* the *ringent* flowers are not included in the class DIDYNAMIA, some coming under Class II. DIANDRIA, there can be no good reason for not making this real division of a class into *an Order.* The System *hence* becomes more *easy* and *regular*, and in fact *more frequently approaches to a perfect or natural system.*

II. The Class VI. HEXANDRIA, also readily separates into two parts, from the like consideration of the *proportion* in the stamina, and TETRADYNAMIA contains the *natural tribe* of *cruciform* plants, which, according to the just rules of art, is an *Order.*

III. The Class XIII. POLYANDRIA, also readily divides into two parts, from the consideration of the *insertion* of the stamina, and one of these, the ICOSANDRIA, of Linnæus, possesses *many edible fruits*, but as it is not altogether a *natural class*, therefore no one can regret seeing this class also made to form an *Order.*

IV. In the Class XVII. MONADELPHIA of Linnæus, many of the numerical names, which had been used to characterize the Classes, are employed to distinguish the Orders, or subdivisions, as *Pentandria*, *Decandria*, &c. and hence arises a confusion unavoidably perplexing to the young student, and which our Reform, as is evident, completely removes. The same observation applies to the Classes XVII. *Diadelphia*, XVIII. *Polyadelphia*, XX. *Gynandria*, XXI. *Monœcia*, XXII. *Diœcia*, where the same, (may I call it so?) impropriety occurs*. These classes in LINNÆUS are *not natural*, but being made into *orders*, many of them then become *natural* as *orders*, as the COLUMNIFERÆ.

V. The *Papilionaceous Flowers*, as they are generally termed, form the Order *Decandria* in the Class XVII. DIADELPHIA, of Linnæus; but the author, unwilling, as it would seem, to make any breach in so natural an assemblage of plants, has so far deviated from the principles of his System, as to refer to that Class several genera, which strictly belong to the preceding

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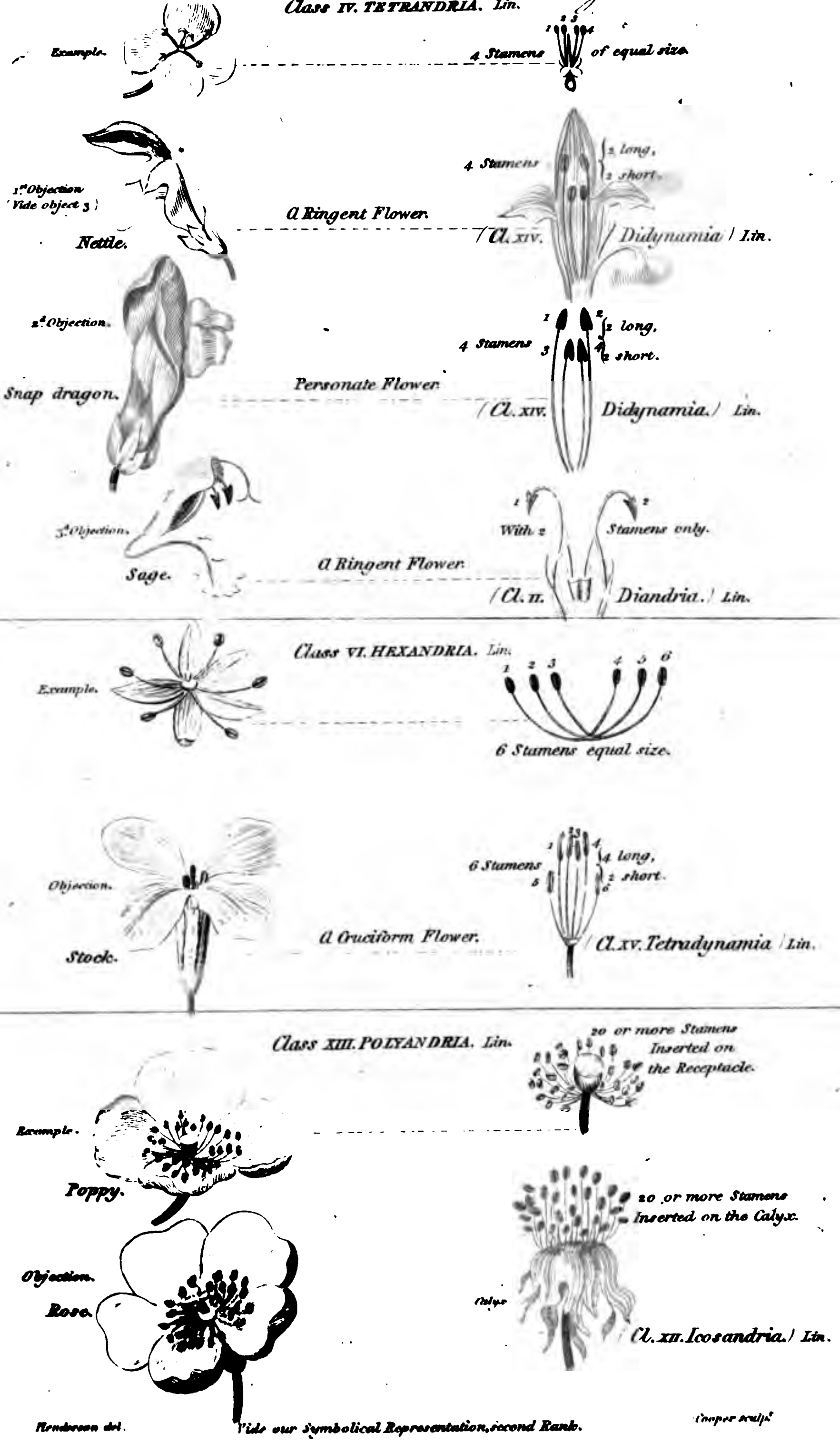
* The reader is requested to consult now the Analysis of the Sexual System before given, the better to understand these remarks.

Remarks on the Sexual System.

To face p. 77.



Henderson del. Vide our Symbolical Representation, second Rank. Cooper sculpt.

London, Published as the Act directs, by Dr. Thornton Decr. 1st 1810.

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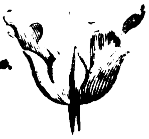
To face p. 78.

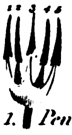
Remarks on the Sexual System.

Class XVII. MONADELPHIA. Lin.

Hermannia.

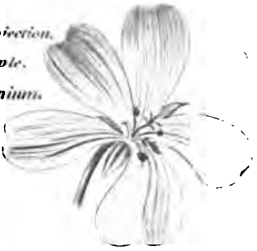


5 Stamina.

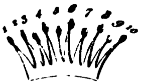


(Order 1. Pentandria.)

2nd Objection. Example. Geranium.



10 Stamina.

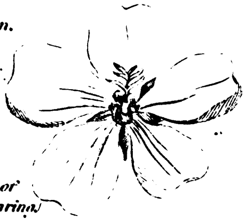


(Order 2. Decandria.) Lin.

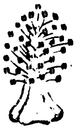
(Order 3. Endecandria) Lin.

(Order 4. Dodecandria) Lin. & so on to Many Stamina.

3rd Objection. Example. Mallow.

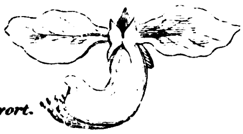


(This flower is of Nat. Ord. Column-bearing.)



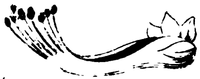
(Order 5. Polyandria.) Lin

Class XVII. DIADELPHIA. Lin.

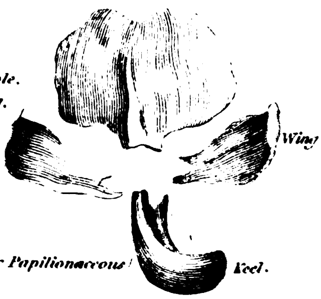


Milkwort.

8 United Stamina.



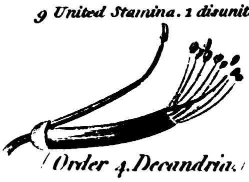
(Order 3. Octandria.) Lin.



Example. Pea.

(Flower Papilionaceous)

9 United Stamina. 1 disunited.



(Order 4. Decandria.) Lin.

Henderson del. Cooper sculp.

London Published as the Act directs, by Dr. Thornton Decr. 1st. 1810.

Class, being in fact *Monadelphious.* This inconvenience is entirely obviated in the present scheme, where *Monadelphia* and *Diadelphia* constitute two successive Orders to the Class X. *Decandria.*

VI. POLYADELPHIA is a small, and, as Doctor SMITH observes, "*rather an unnatural class.*" Most persons are shocked to see CITRUS, the Orange, in this class, and not in the *Icosandria* class; for LINNÆUS describes it of the Class XVIII. POLYADELPHIA, Order III. *Icosandria.* Now in our *Reformed Sexual System,* it comes under Class XIII. POLYANDRIA, Order *Icosandria,* in juxta-position with other edible fruits, entering into our subdivision POLYADELPHIA.

VII. Class V. PENTANDRIA, a very numerous class, is subdivided by SYNGENESIA, and so formed into two classes by Linnæus, the latter of which, however, as containing an order, MONOGAMIA, is not, therefore, altogether a *natural class.* We obviate this by making *Syngenesia* an order, and the subdivision *Polygamia* to contain the natural tribe of compound flowers; whilst, under another subdivision, *Monogamia,* several plants not having compound flowers would arrange themselves.

VIII. Against GYNANDRIA, which Dr. Smith calls "an odd and miscellaneous class," there lies the same objection, as we observed above, as against the class DIADELPHIA, the numerical names of classes being applied to Orders. In our scheme, Class II. DIANDRIA, has an Order GYNANDRIA, which contains the *natural tribe* of ORCHISES*; and thus the mind is delighted to see a *natural assemblage* an order, if not as a class. The separation of the remainder cannot be regretted, as not possessing amongst each other the smallest affinity.

IX. MONŒCIA is a miscellaneous class, and borrows the name of its secondary divisions from most of the other classes, as *Monandria*, *Diandria*, &c.; nay even from *Monadelphia*, *Syngenesia*, and *Gynandria*; for all these become, in Linnæus's Sexual System, *Orders*. In our scheme, Class TRIANDRIA, which contains mostly *grasses*, has Order *Monœcia*, hence it is we retain this *natural assemblage* in the same class *at least*, if not in the same order.

X. DIŒCIA. The same remarks apply here, as in MONŒCIA.

XI. POLYGAMIA is subdivided by the classes *Monœcia* and *Diœcia*; these in the logic of science are, therefore, in reality orders.

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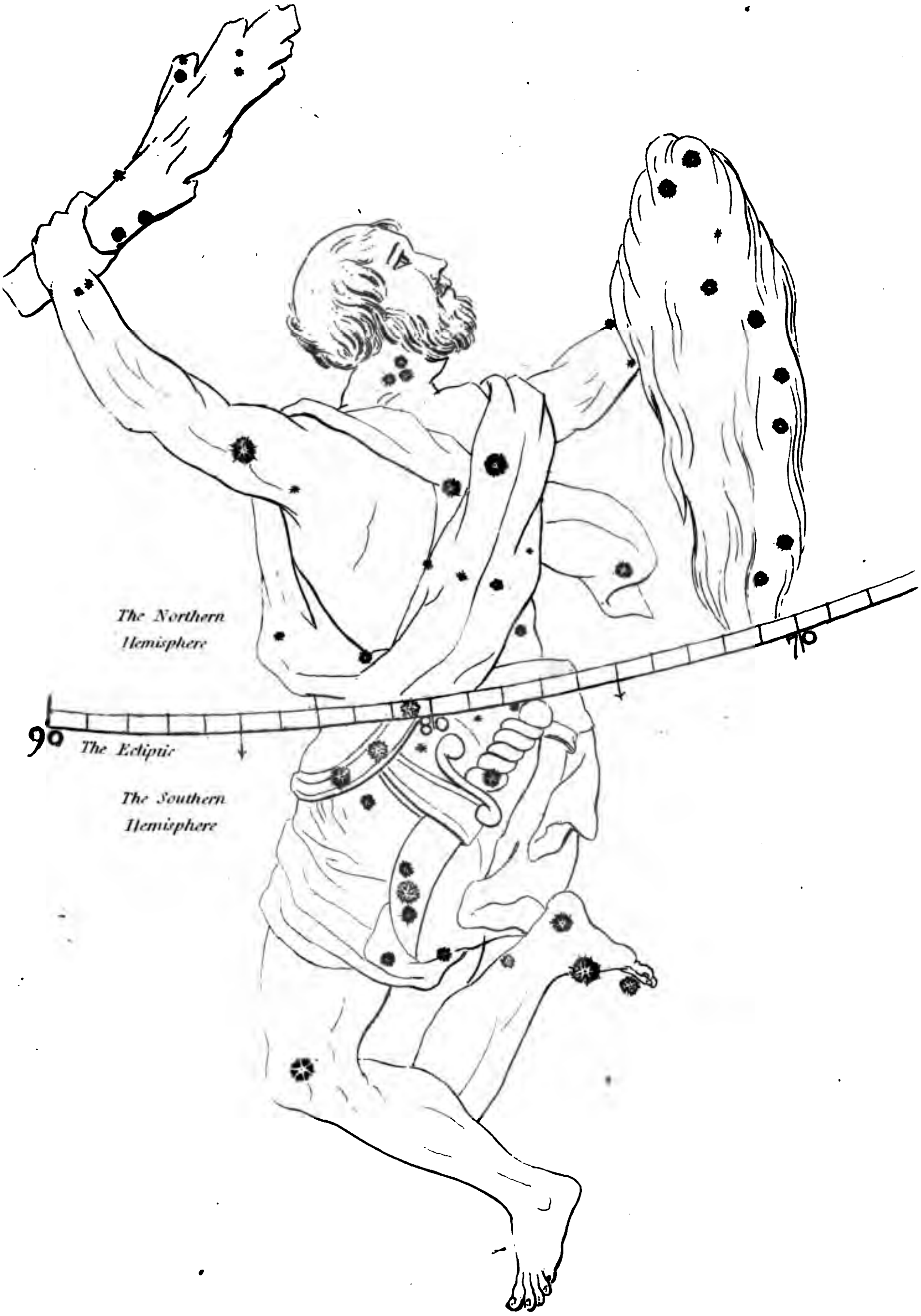
* *Vide* "The British Flora," page 32.

The Constellation Orion.

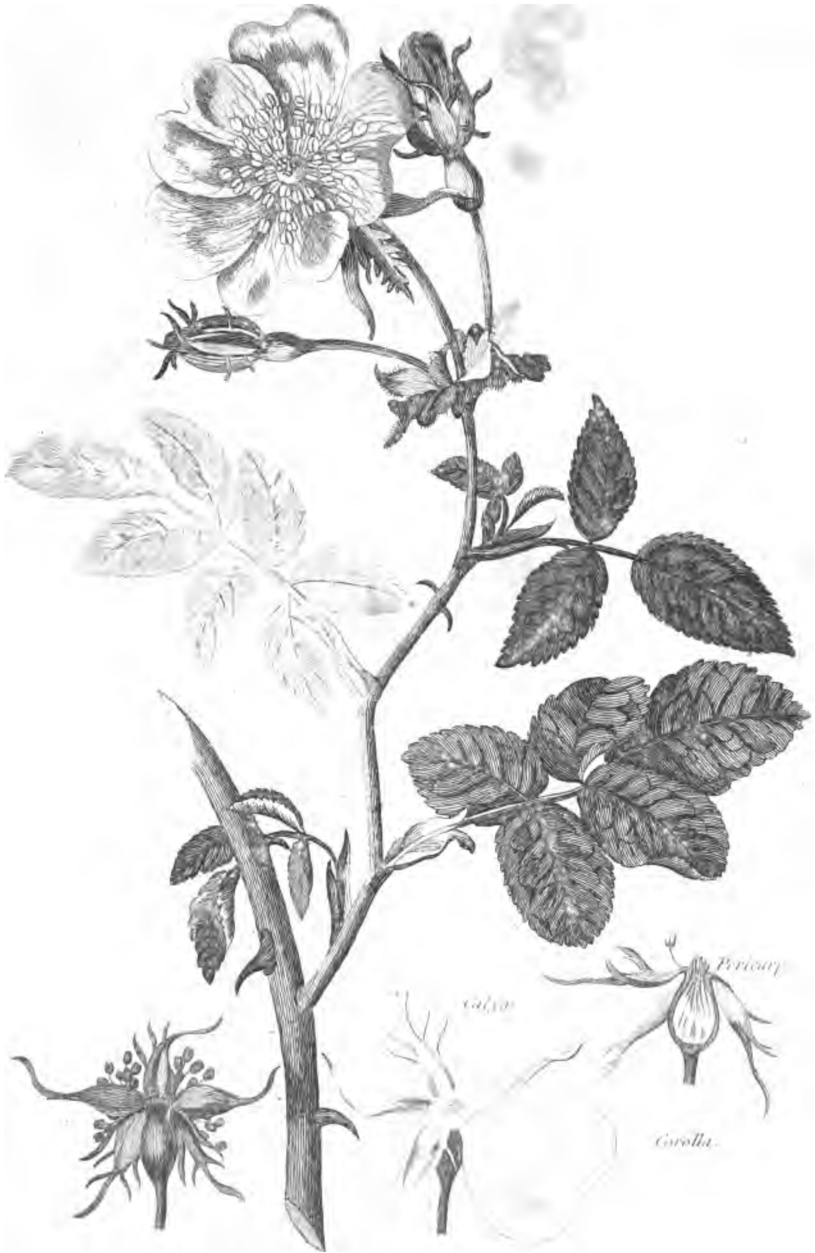


Henderson del. *Mazel sculp.*

London. Published by Dr. Thornton Septr. 1 1810.

Plate 2.

Species 1. Dog Rose.



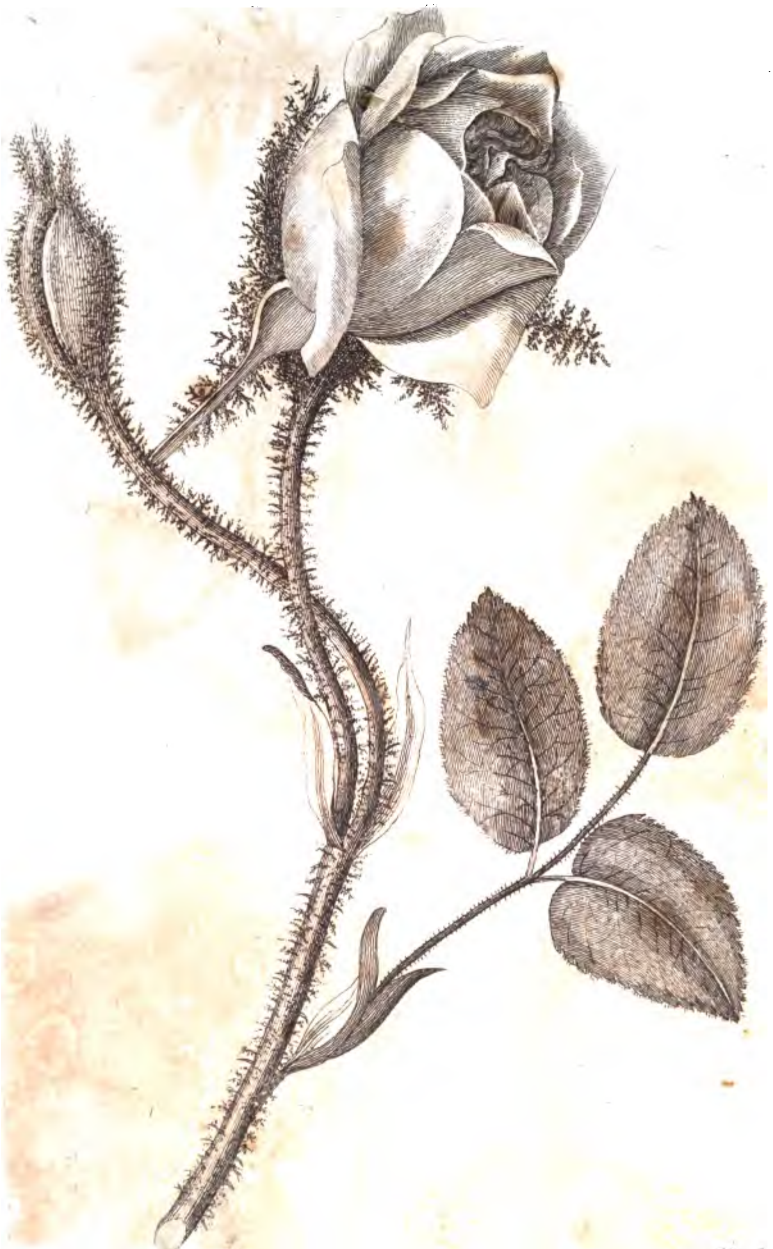
Henderson del. *Mazel sculp.*

London, Published by Dr. Thornton, Septr. 1 1810.

BIBLIOTHECA BODLEIANA

Plate 3

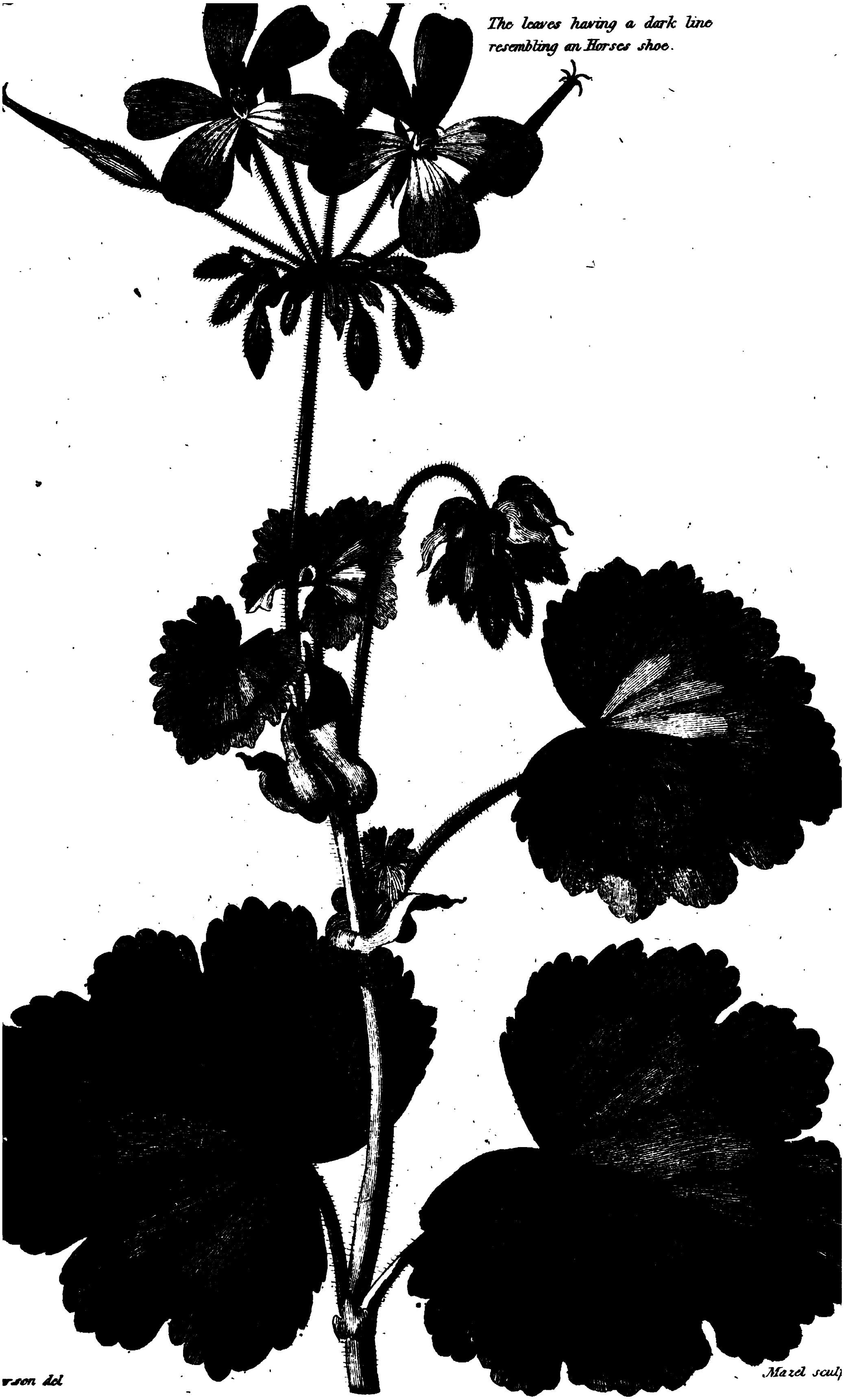
Species 2. Moſs Rose.



Henderson del

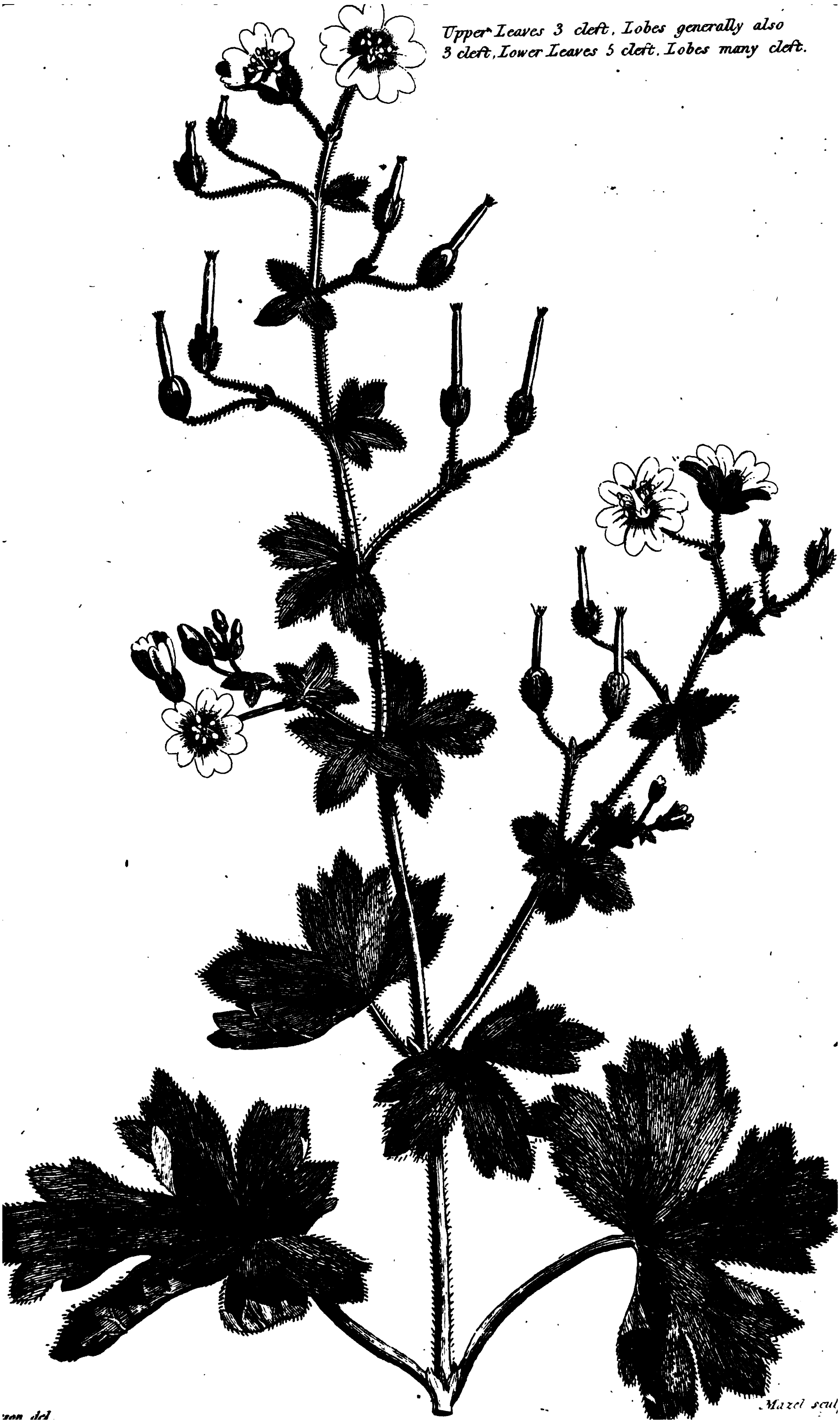
Mazel sculp

London. Published by Dr. Thornton Augst 1. 1810.



The leaves having a dark line resembling an Horses shoe.

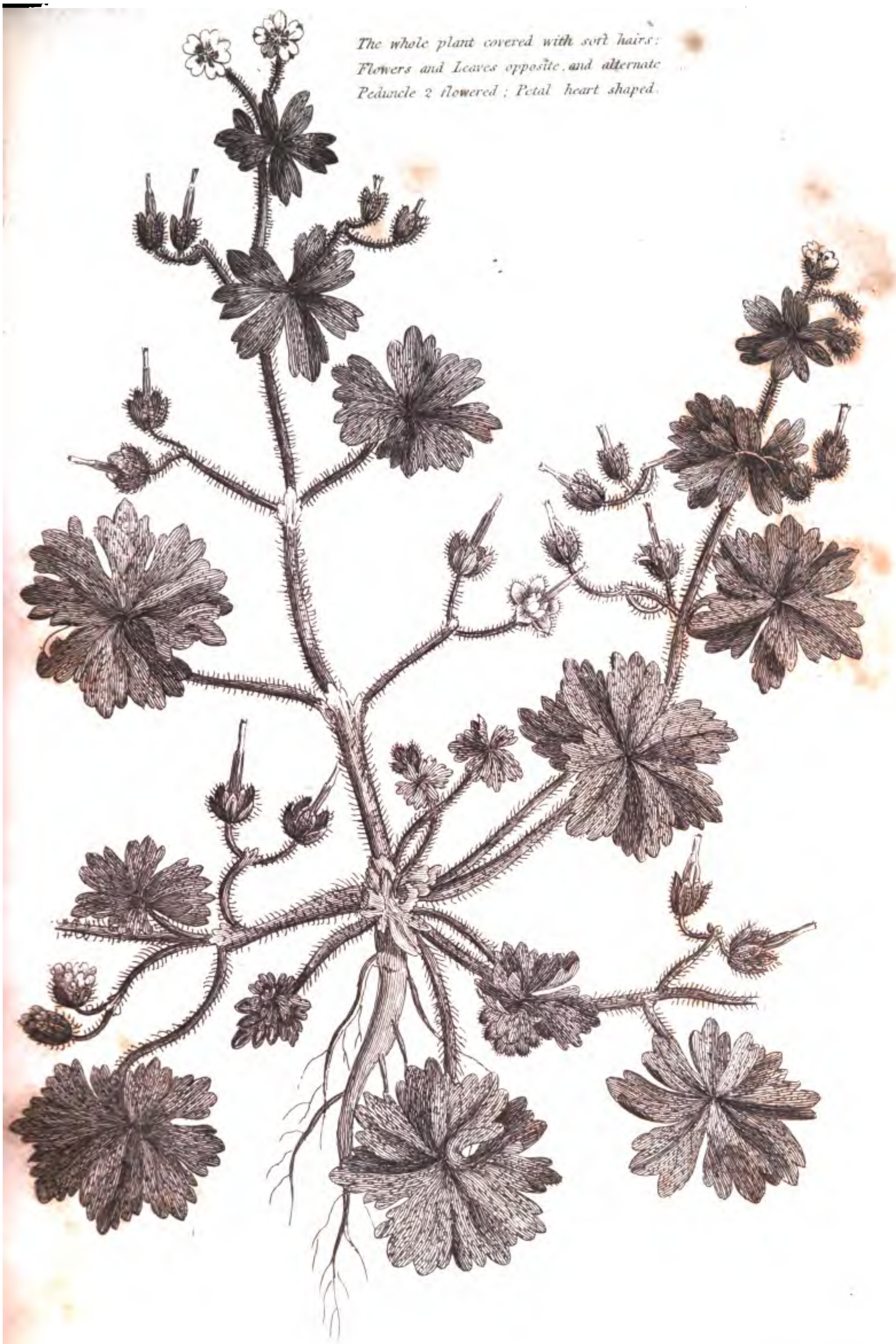
rson del *Mazel sculp*



Upper Leaves 3 cleft. Lobes generally also 3 cleft. Lower Leaves 5 cleft. Lobes many cleft.

zon del

Mazel sculp



The whole plant covered with soft hairs:
Flowers and Leaves opposite, and alternate
Peduncle 2 flowered; Petal heart shaped.

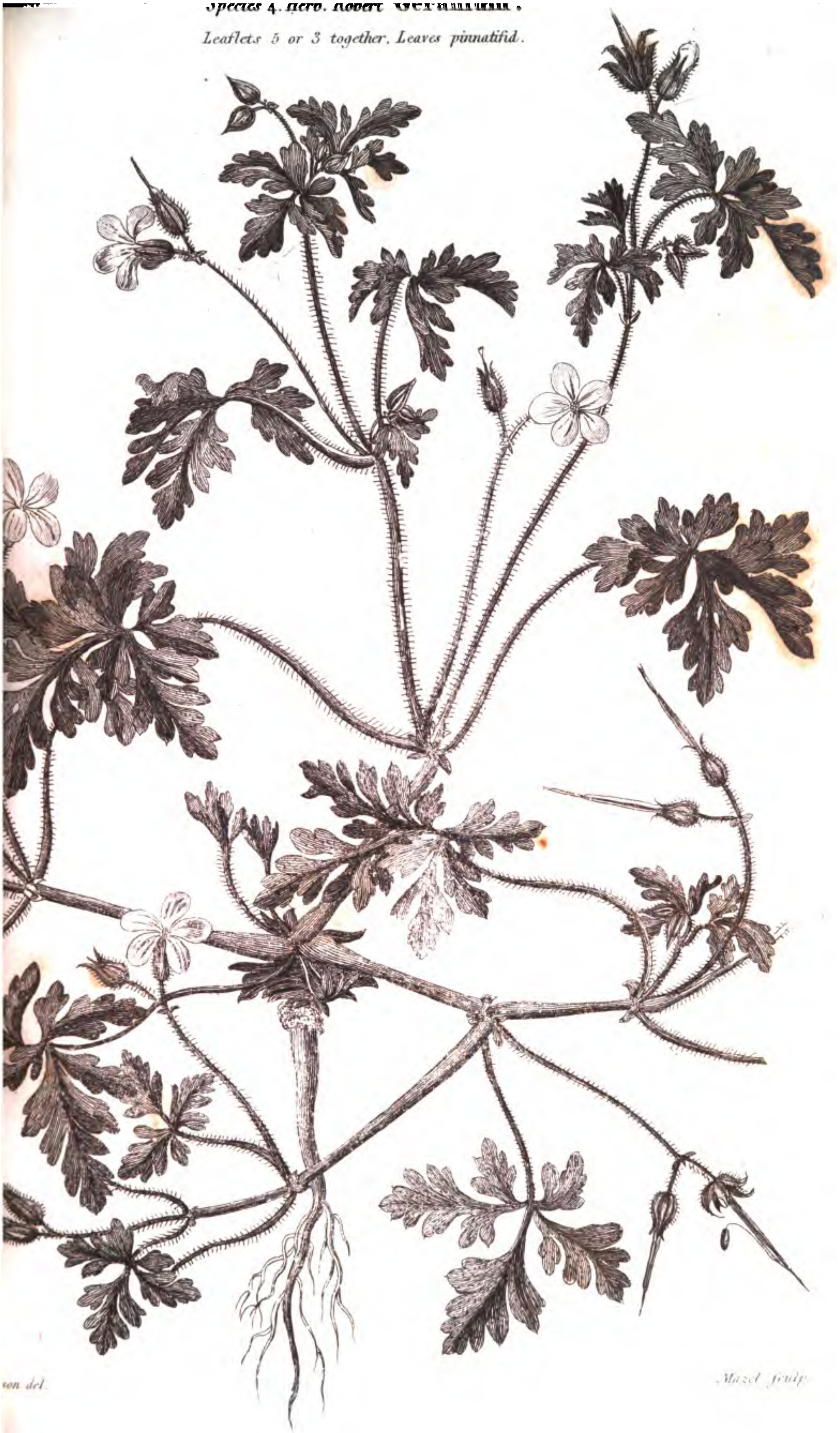
Henderson del. *Midzer sculp.*

London, Published by Dr Thornton, Septr 1 1810.

BIBLIOTHECA · BODLEIANA ·
DOMINUS ILLUMINATIO MEA

Species 4. Herb. Robert Geranium.

Leaflets 5 or 3 together. Leaves pinnatifid.

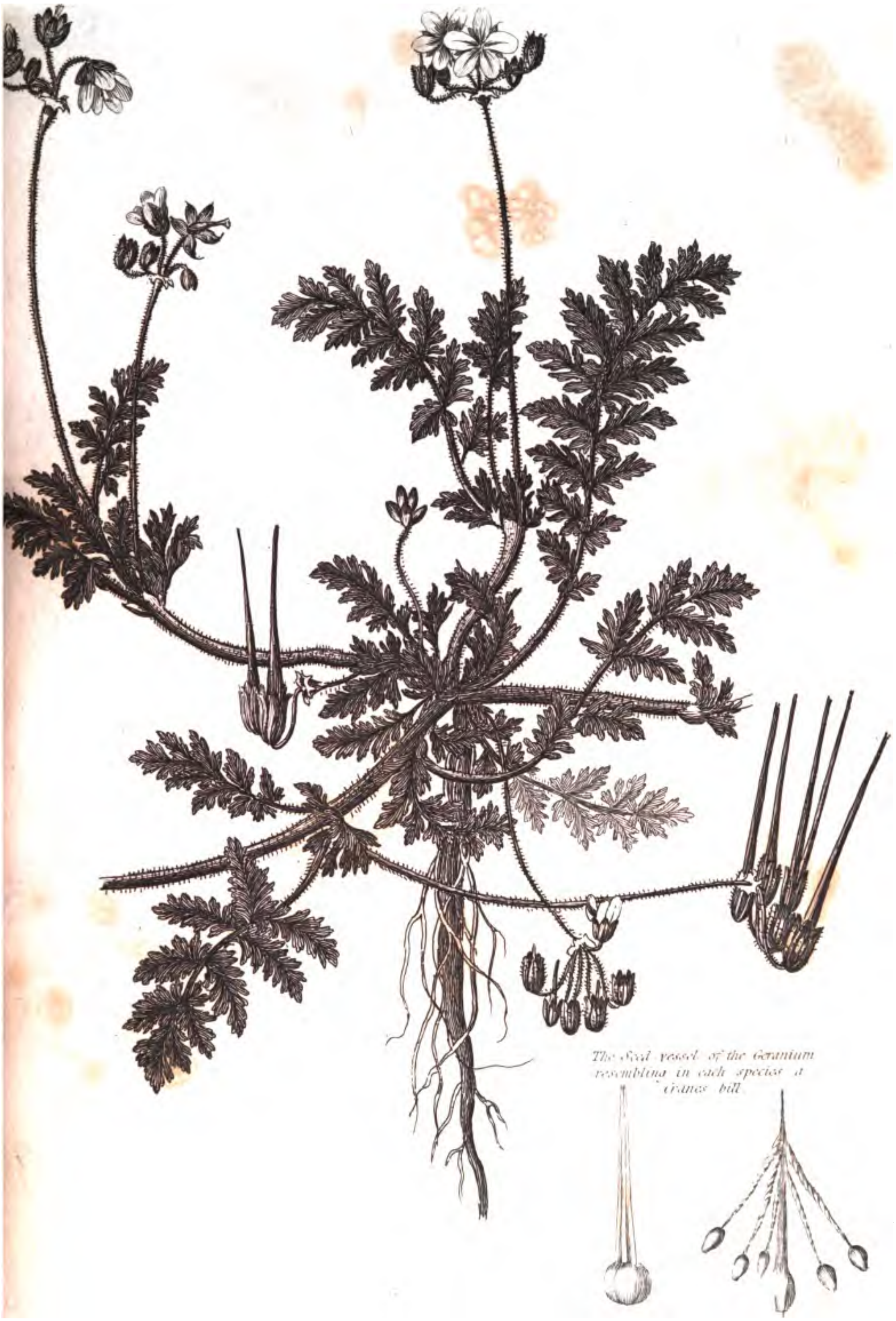


son del.

Mazel ſculp.

Species 3. Hemlock leaved Geranium.

Leaves pinnate, incised.



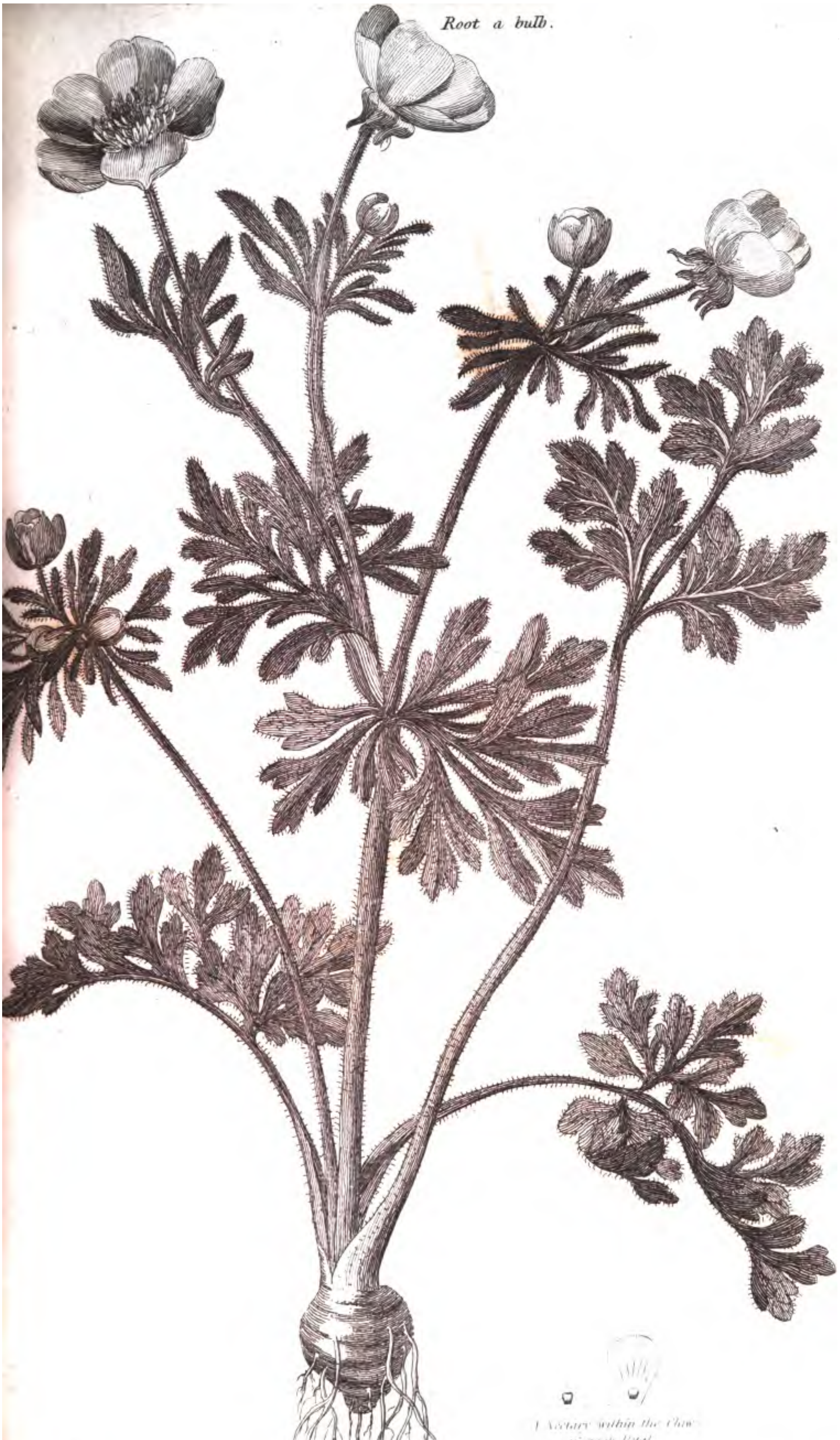
The Seed vessel of the Geranium resembling in each species a Cranes bill

ram del.　　　　　　Maxel sculp.

London, Published by Dr. Thornton Sept. 1.1810.

BIBLIOTHECA BODLEIANA

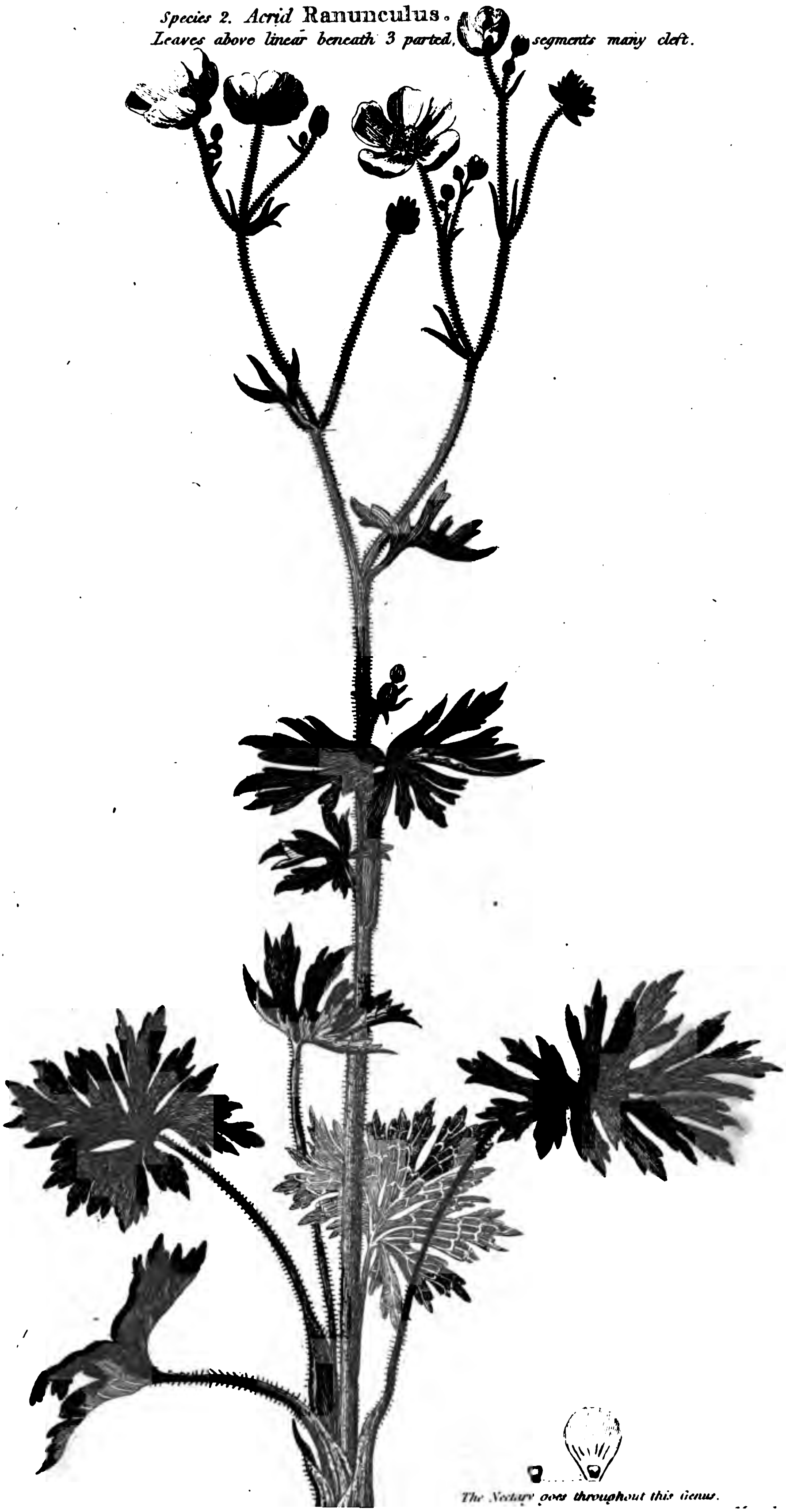
Root a bulb.



derson del. Mazel sculp.

Species 2. Acrid **Ranunculus.**

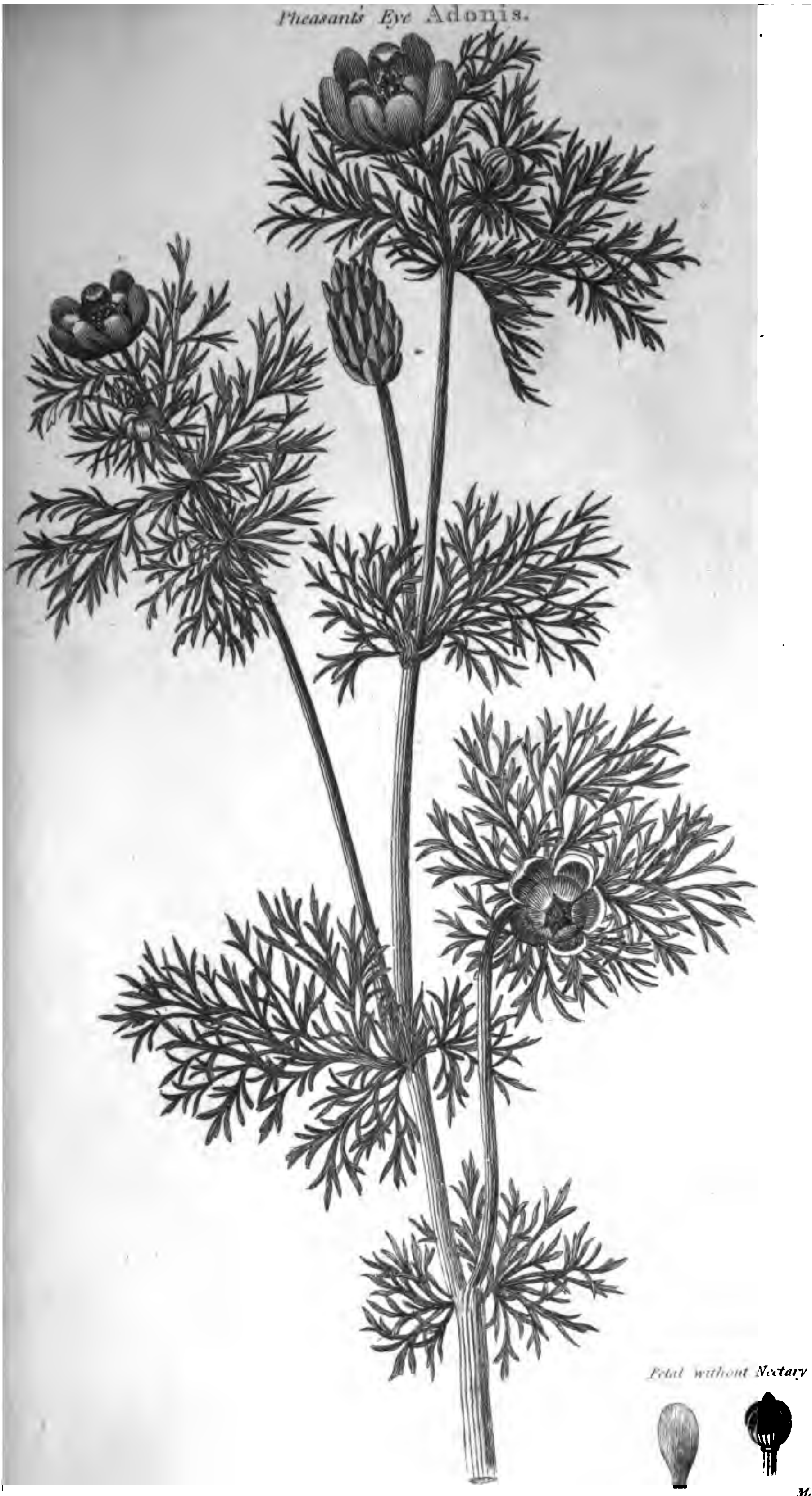
Leaves above linear beneath 3 parted, segments many cleft.



The Nectary goes throughout this Genus.

BIBLIOTHECA BODLEIANA

Pheasants Eye Adonis.



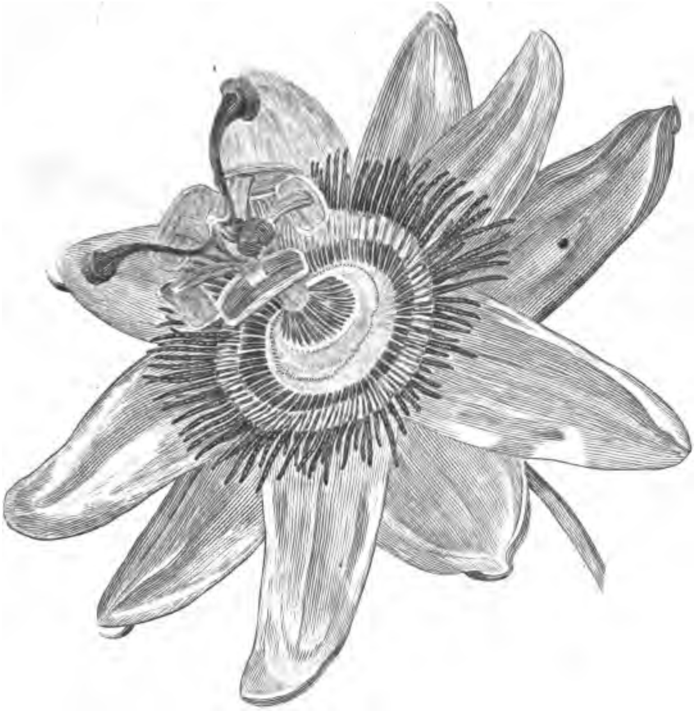
[illegible] del.

Mazel sculp

London. Published by Dr. Thornton, Sept. 1, 1810

BIBLIOTHECA·BODLEIANA

Passion Flower.



Species 1. Common Blue Paſsion Flower

Nectary blue.

Henderson del.

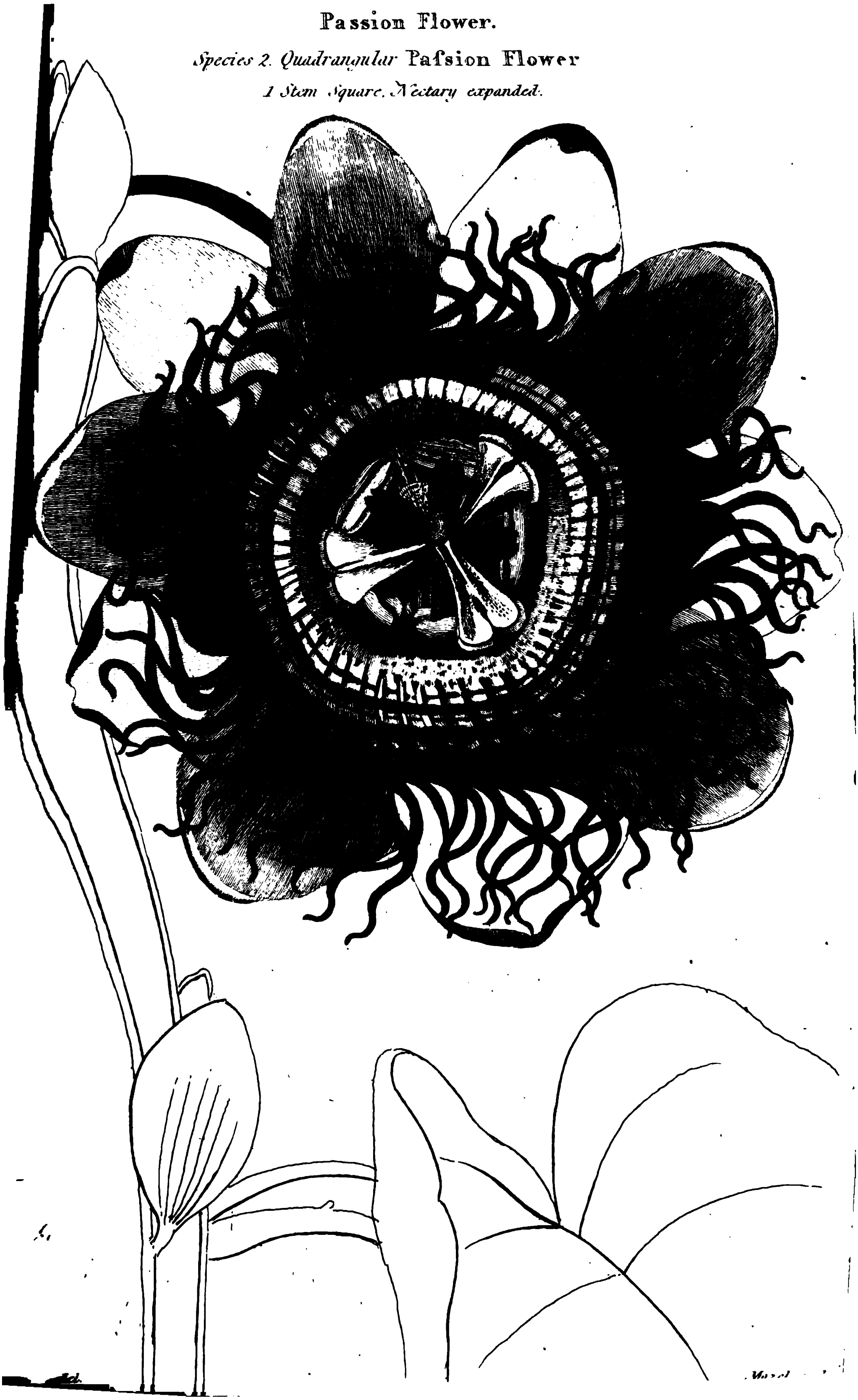
Mazel sc.

BIBLIOTHECA·BODLEIANA

Passion Flower.

Species 2. Quadrangular Paſsion Flower

1 Stem Square. Nectary expanded.

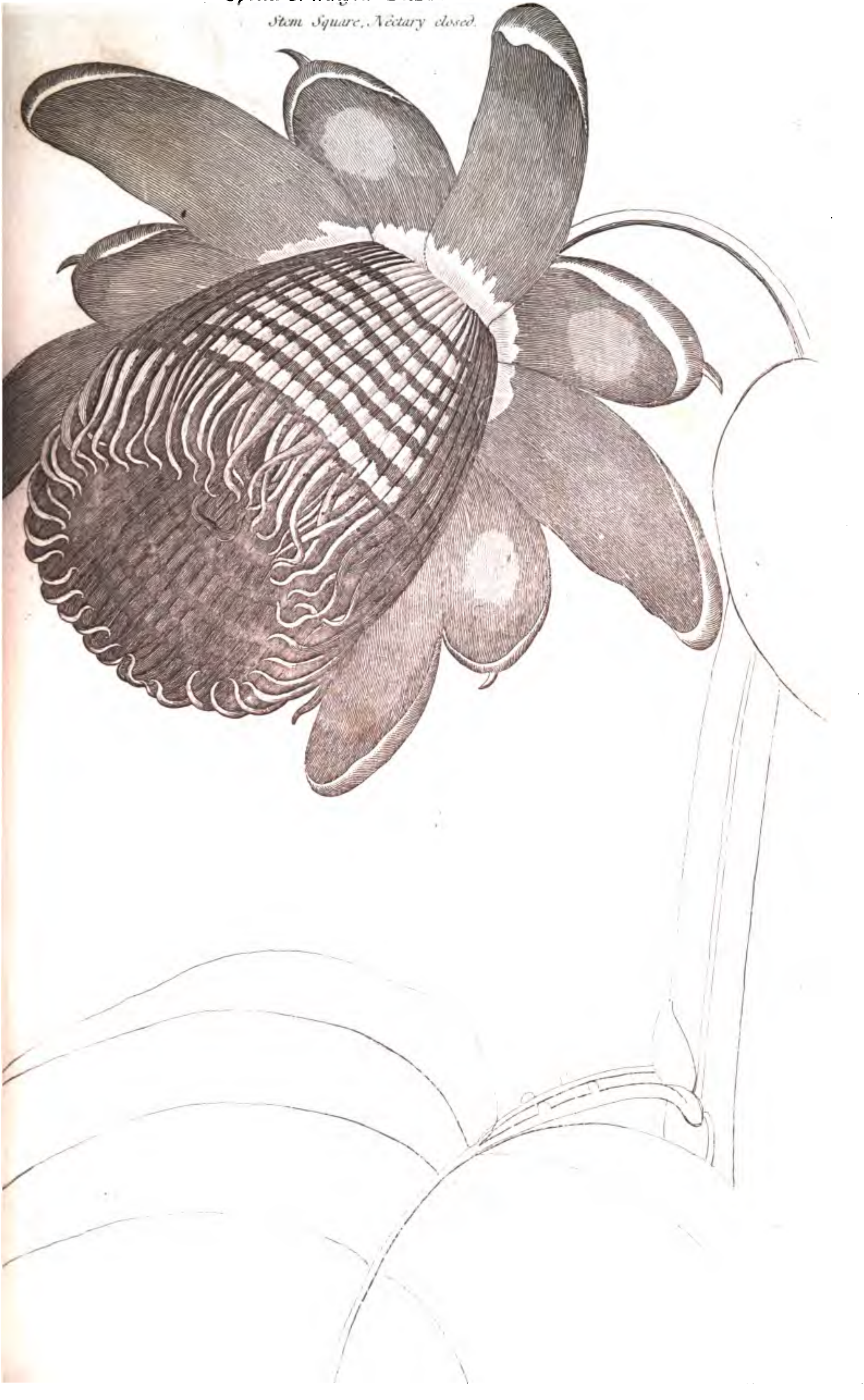


BIBLIOTHECA·BODLEIANA

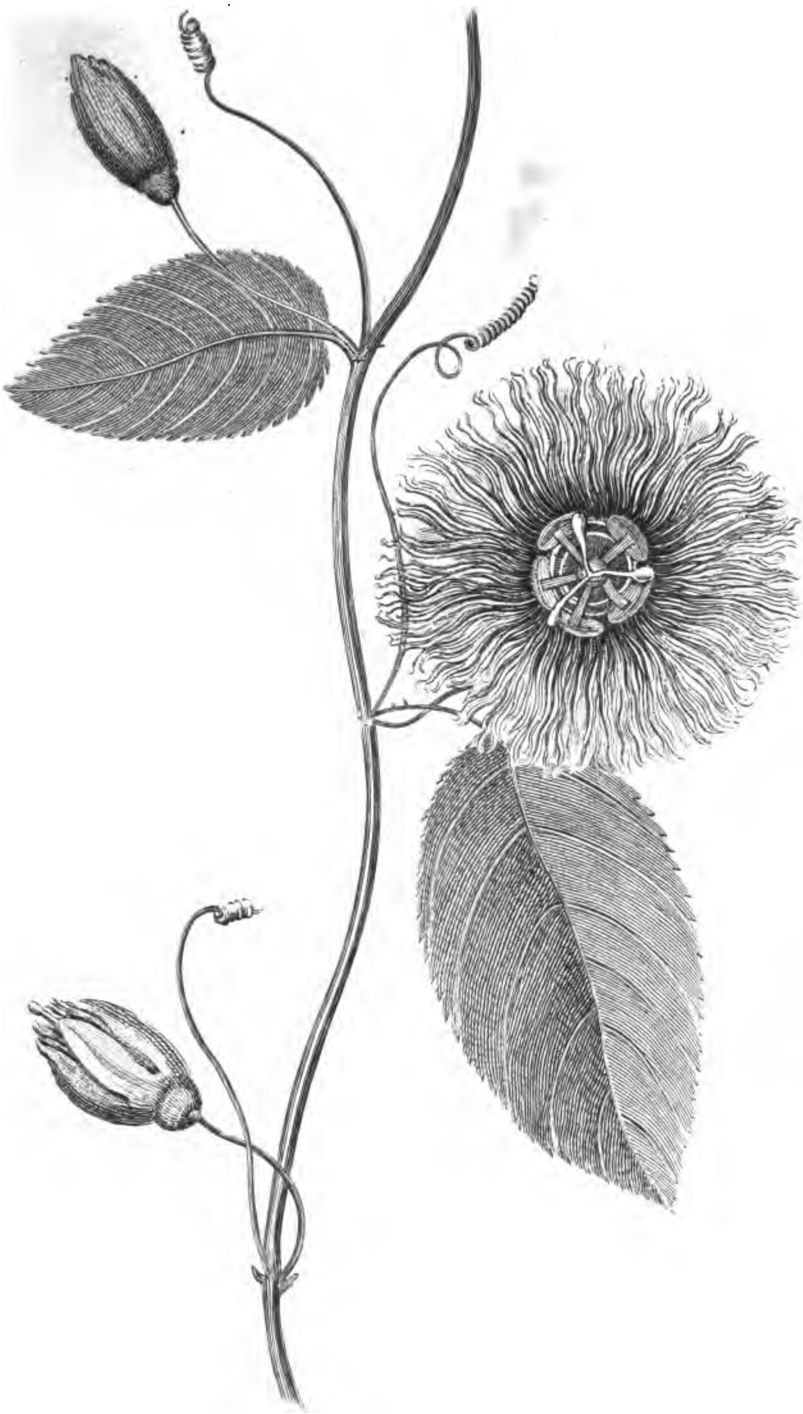
Passion Flower.

Species 3. Winged Paſsion Flower

Stem Square, Nectary closed.



BIBLIOTHECA · BODLEIANA ·



Species 4. The Serrated Passion Flower.

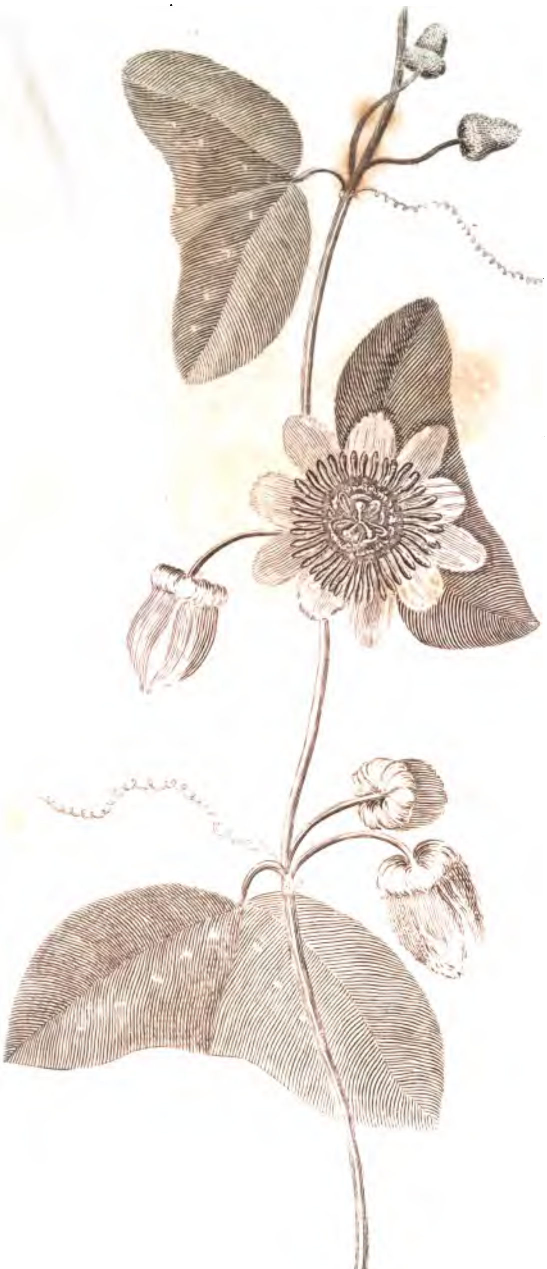
The border of the leaf edged like a saw.

son del

Mazel sculp.

London. Published by Dr. Thornton. Septr. 1. 1810.

BIBLIOTHECA·BODLEIANA·



Species 6. The Dotted Passion Flower.

Dots in the leaf.

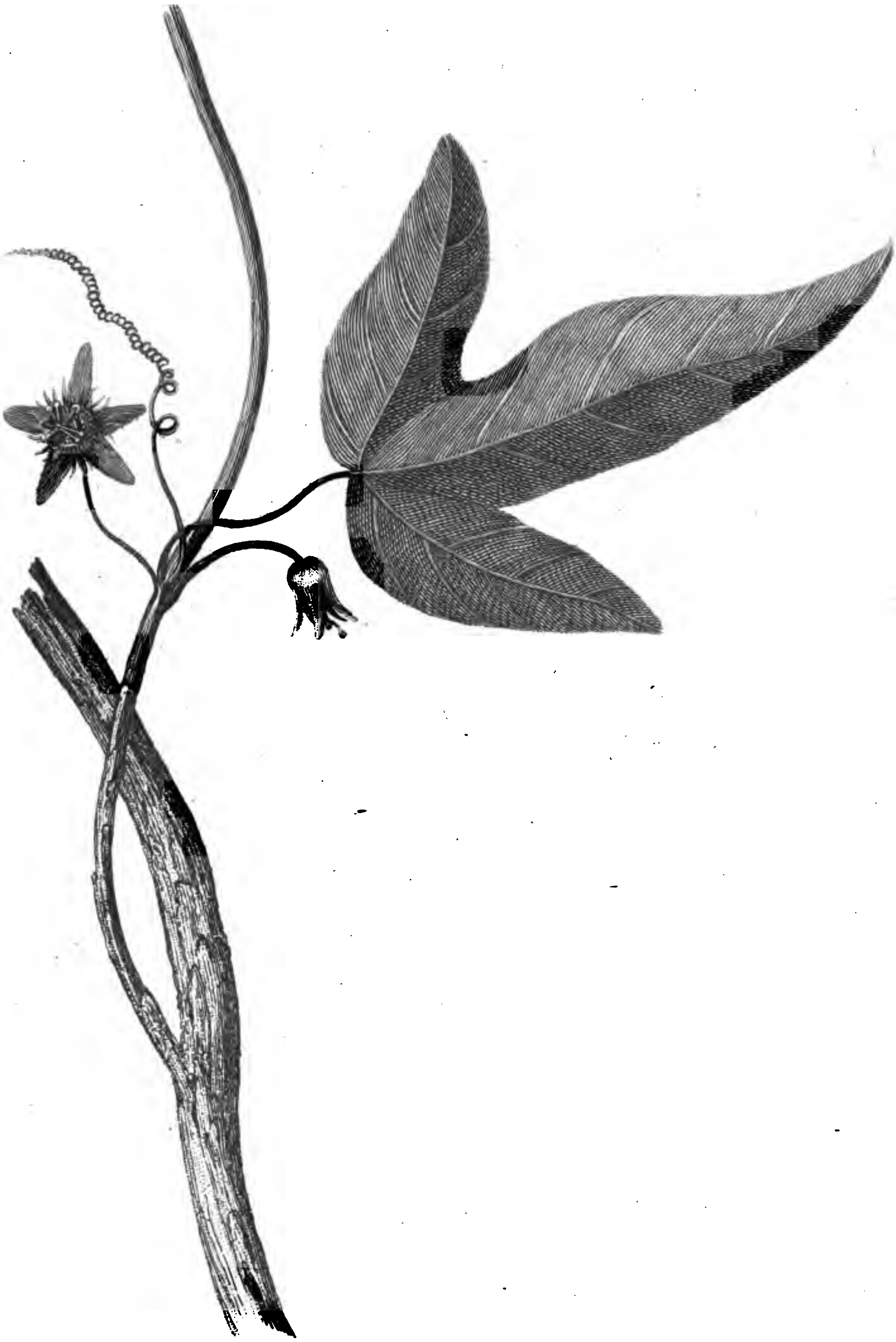
nderson del.

Mazel sculp

London, Published by Dr. Thornton, Sept.r 1.1810.

BIBLIOTHECA·BODLEIANA

A Passion Flower.



Henderson del.

Species 6. The Cork Passion Flower.

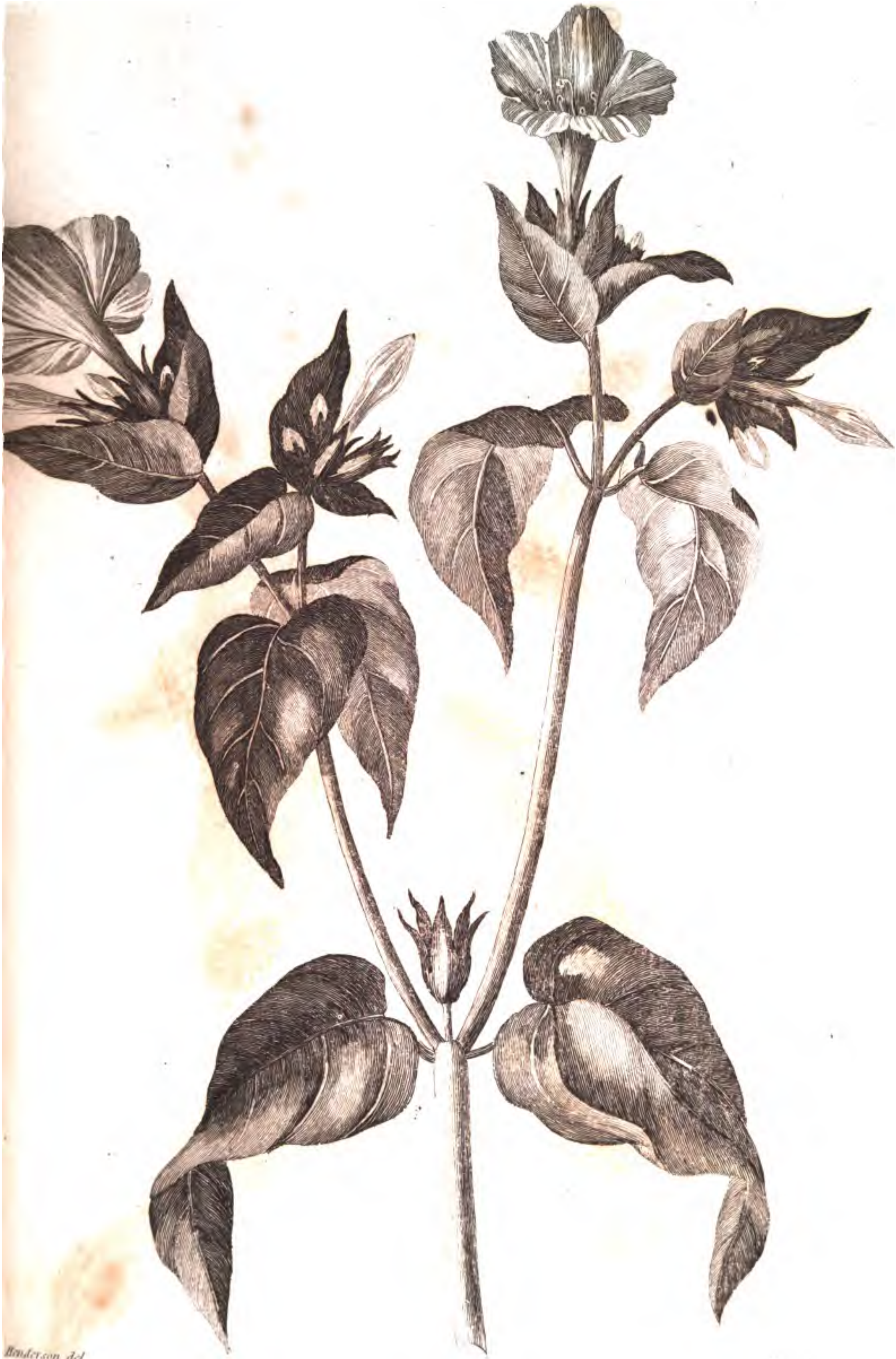
Stem, actually covered with cork.

Mazel sculp

London. Published by D.r Thornton, Sept.r 1. 1810

BIBLIOTHECA·BODLEIANA·
DOMINUS ILLUMINATIO MEA

Species 1. Jalap **Marvel of Peru.**
Leaves peduncled. Flower having a short tube.



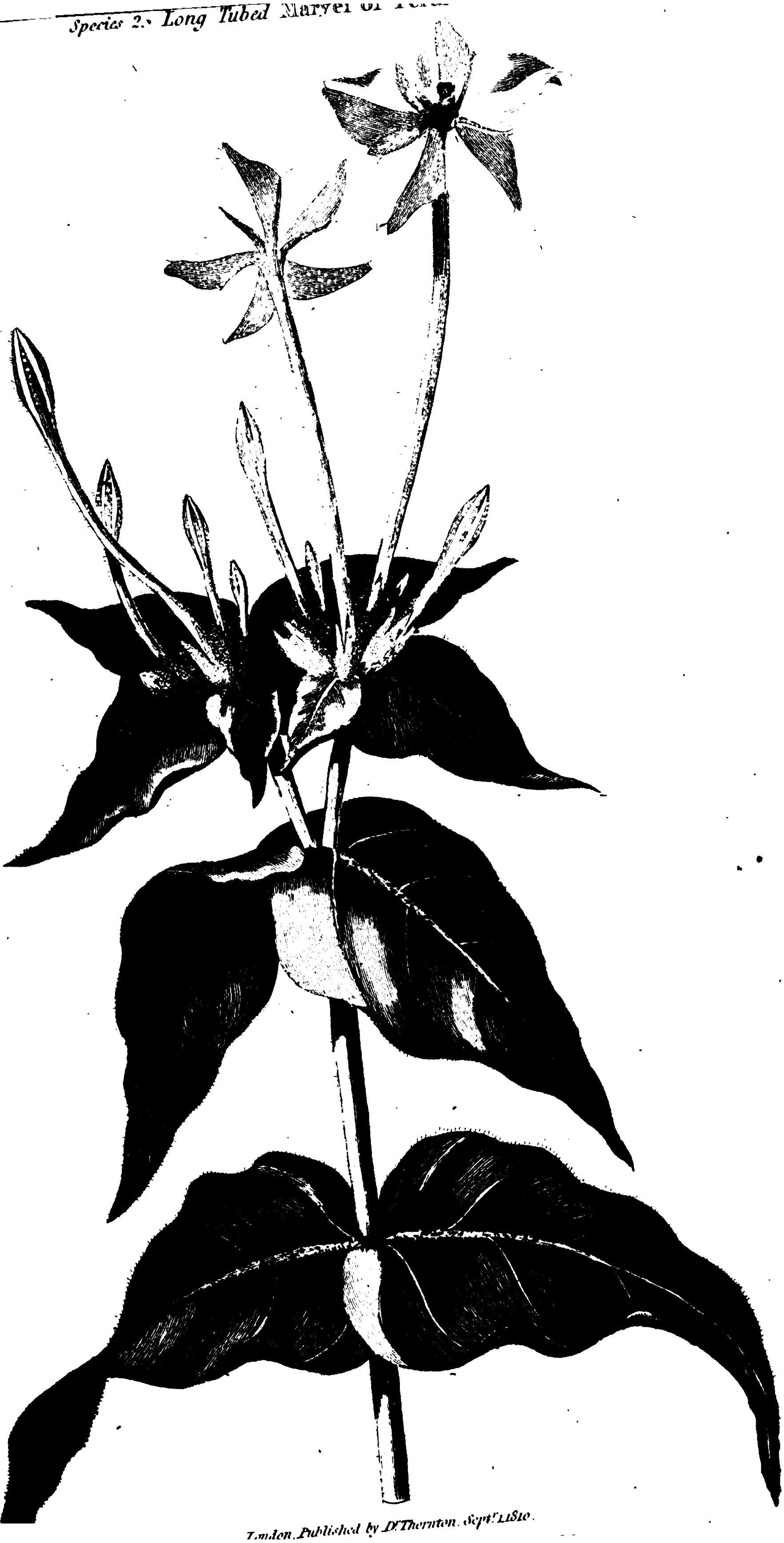
Henderson del.

Mazel sculp.

London. Published by D. Thornton, Sept.r 1810.

BIBLIOTHECA·BODLEIANA

Species 2. Long Tubed Marvel of Peru



n del.

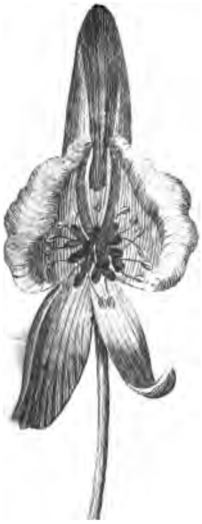
Mazel s

London. Published by Dr. Thornton. Septr. 1.1810.

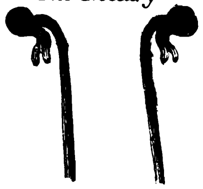
BIBLIOTHECA · BODLEIANA ·

Plate 20.

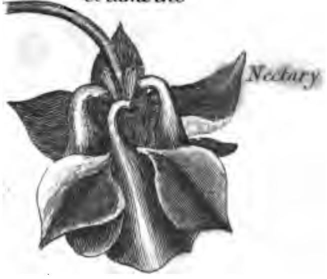
Monkshood



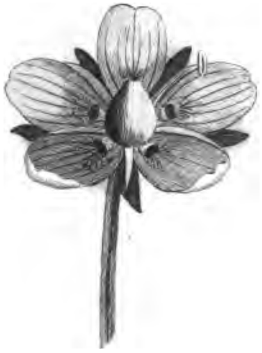
The Nectary



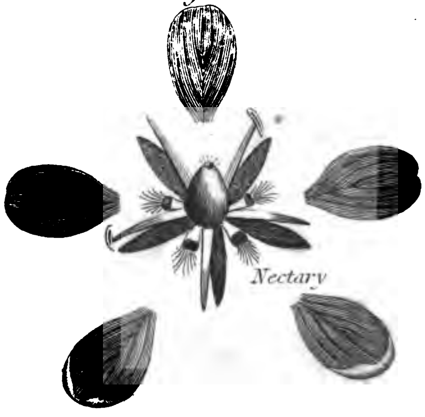
Columbine



Parnassia



Dº Diſsected

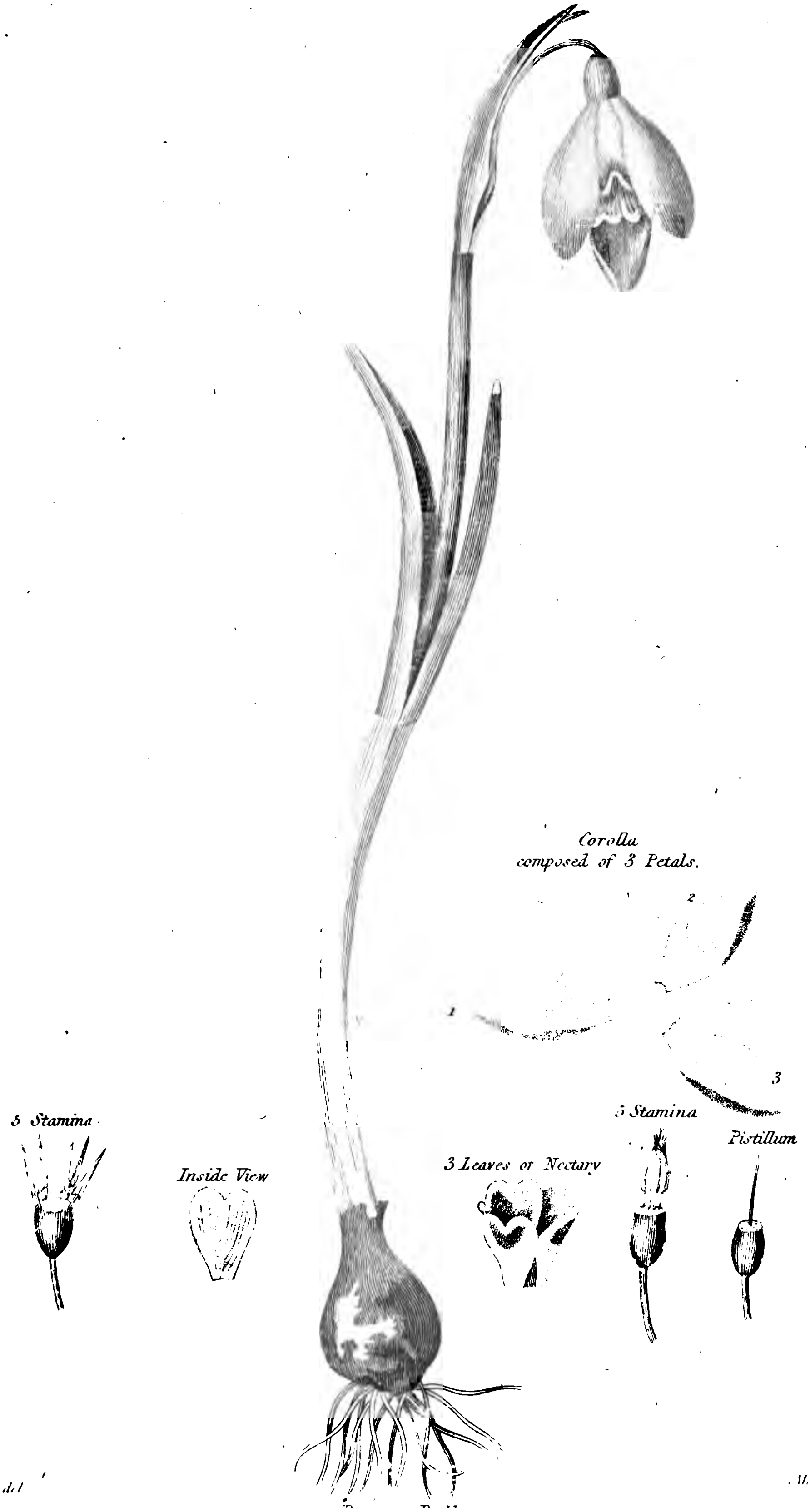


Henderson del.

London, Published by Dr. Thornton, Septr. 1. 1810.

BIBLIOTHECA·BODLEIANA·

Snow Drop, Galanthus Nivalis.



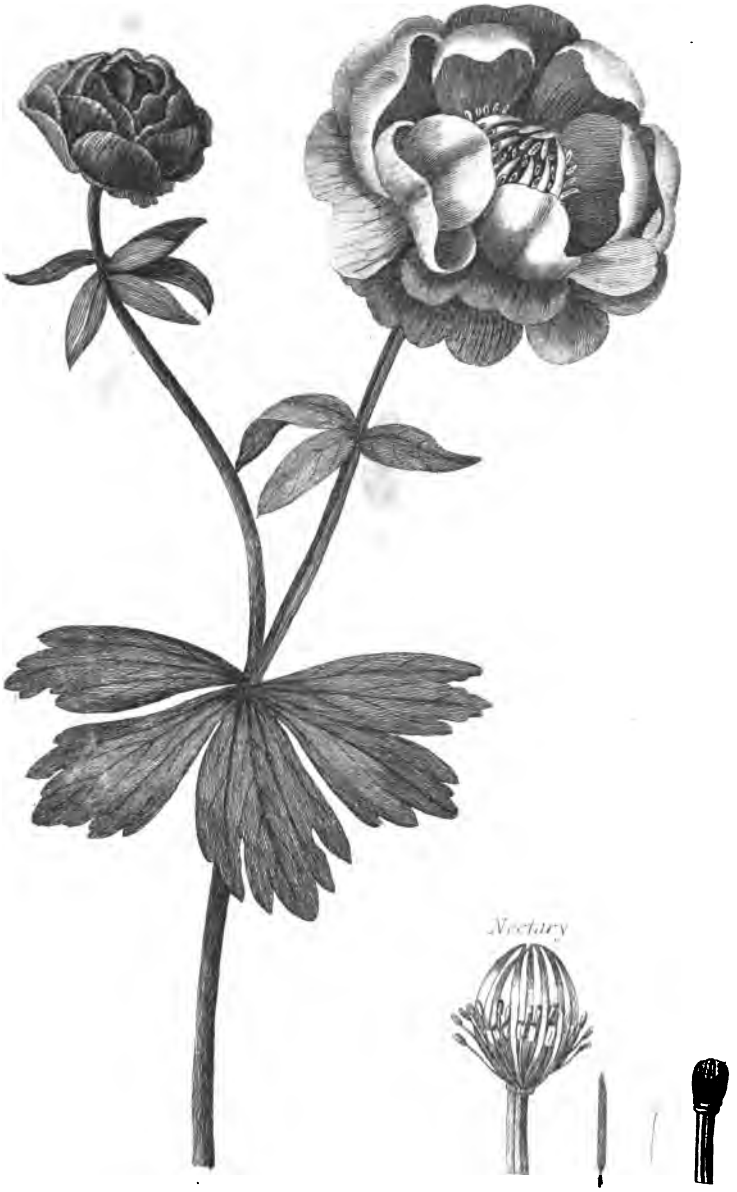
son del. [illegible] Mac

BIBLIOTHECA · BODLEIANA

European Trollius.

Pl: 22

Trollius Eropæus.



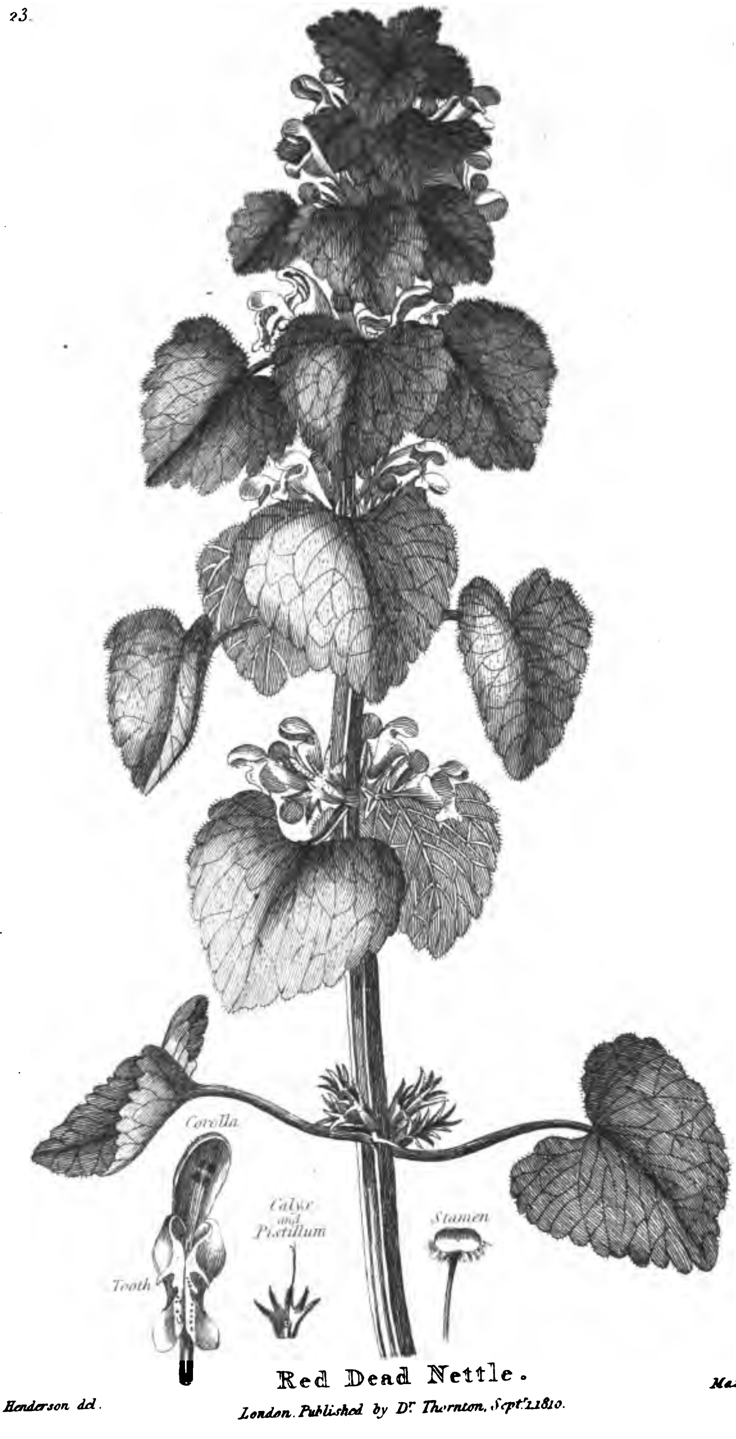
Henderson del.

Mazel sculp.

London, Published by Dr. Thornton, Augt. 1. 1810.

BIBLIOTHECA BODLEIANA

Plate 23.



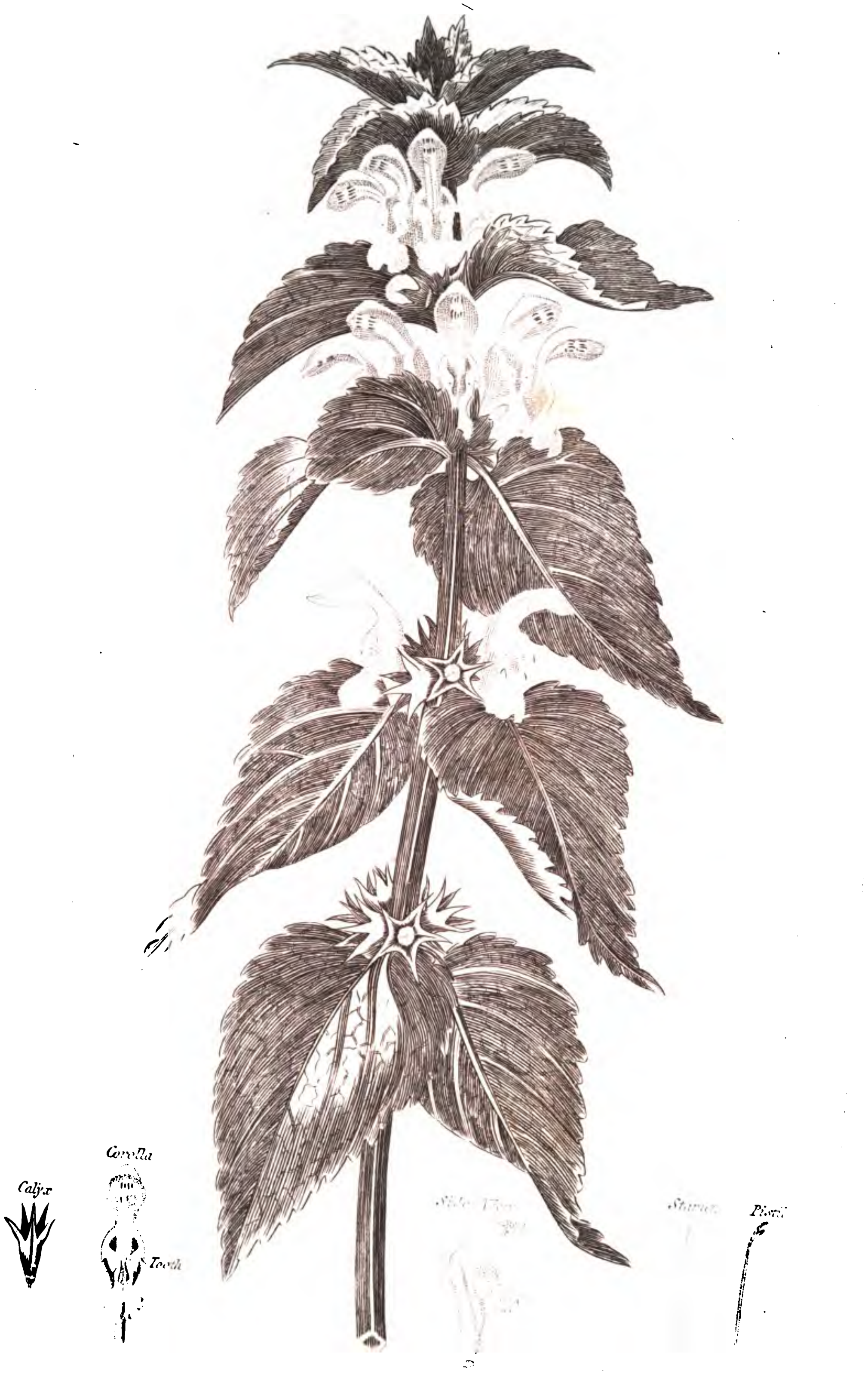
Red Dead Nettle.

Henderson del. *Mazel sculp.*

London. Published by Dr. Thornton, Sept.r 2.1810.

BIBLIOTHECA · BODLEIANA

ate 24.



oon del.

Lamium Album White dead Nettle.

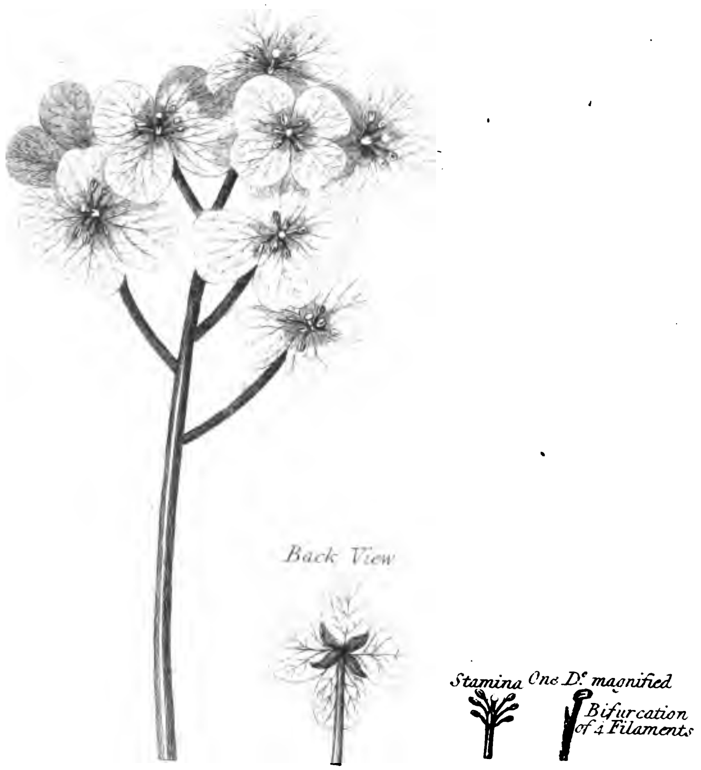
London Published by

BIBLIOTHECA BODLEIANA

Pl: 25.

Sea Kale.

Crambe Maritima.



Henderson del.

London Published by D.r Thornton Aug.st 1. 1810.

Mazel sculp.

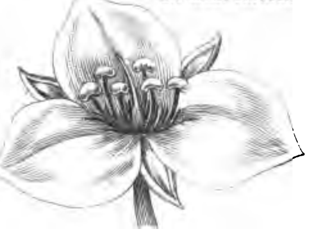
BIBLIOTHECA · LODIEVA ·

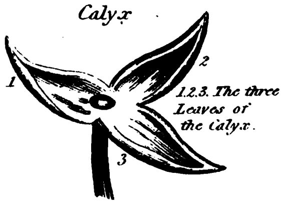
Plate 26.

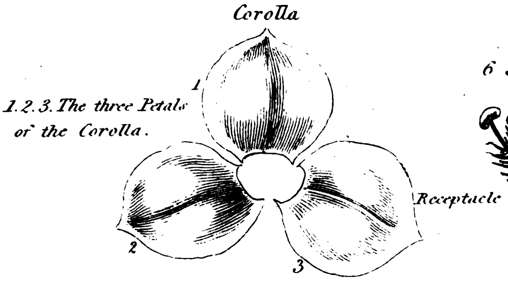
Spider-wort.

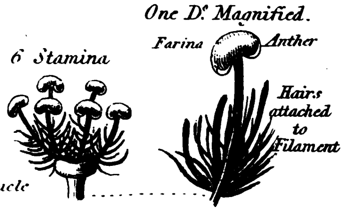
Tradescantia Virginica.

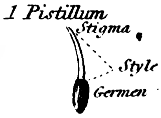
Dissections.



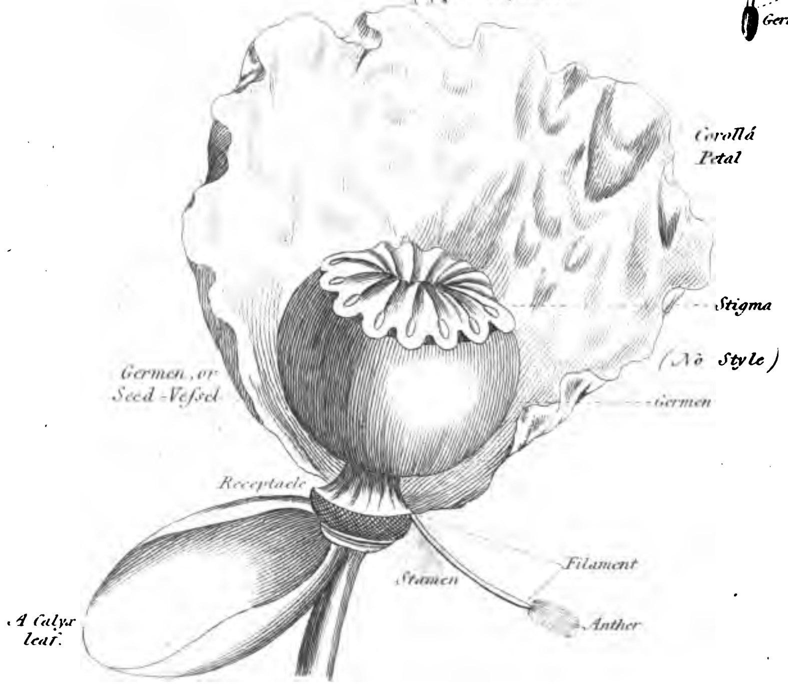

Calyx
1
2
3
1.2.3. The three Leaves of the Calyx.


Corolla
1
1.2.3. The three Petals of the Corolla.
2
3
Receptacle





Poppy. Papaver.

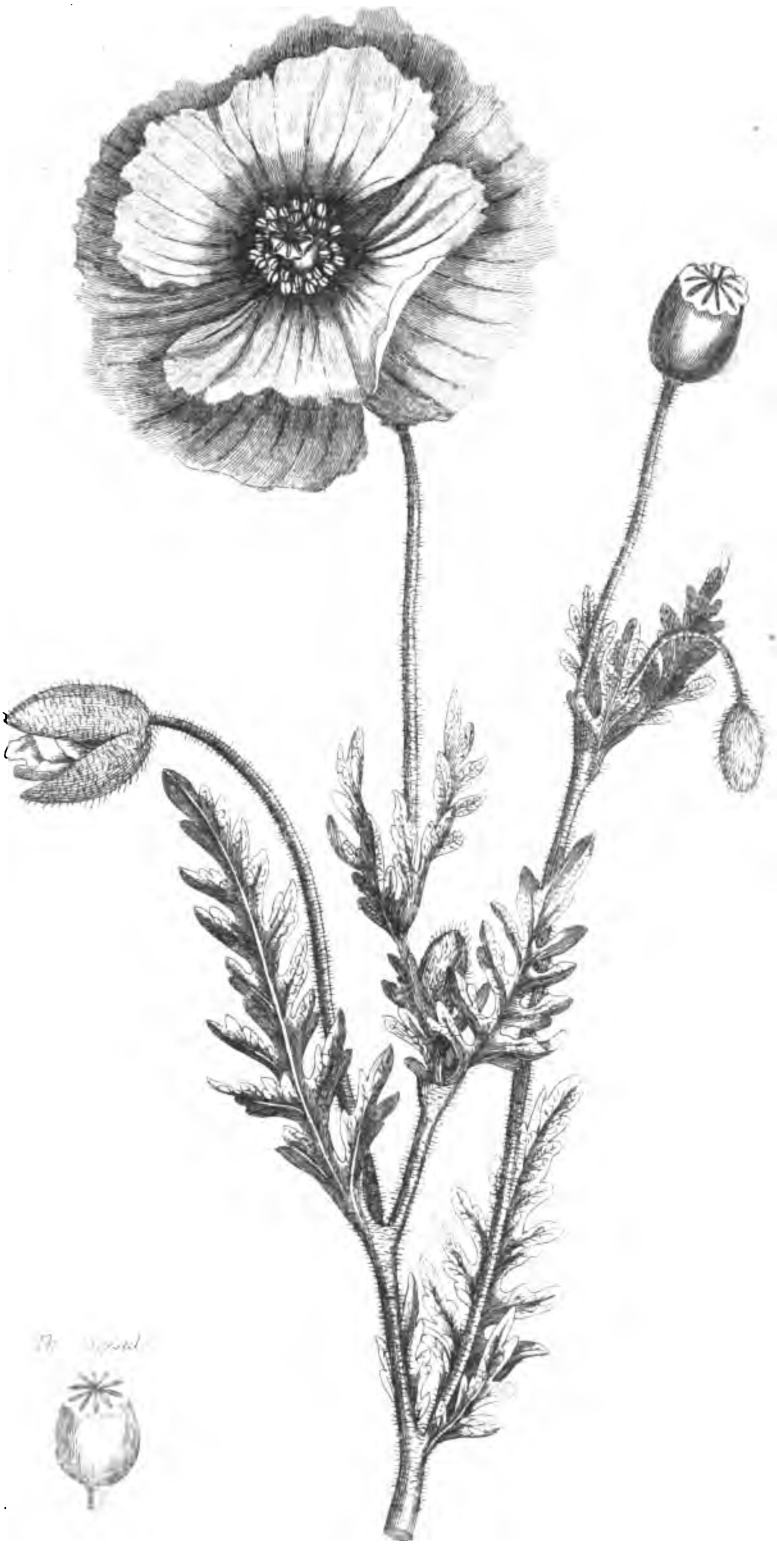


N.B. The Poppy has 2 Calyx leaves, 5 Corolla Petals, 50 or more Stamina, and 1 Pistillum.

Henderson del. Maxd sculp.

London, Published by Dr. Thornton Aug. 1st 1808.

27



Papaver dubium,

Long-smooth-headed Poppy.

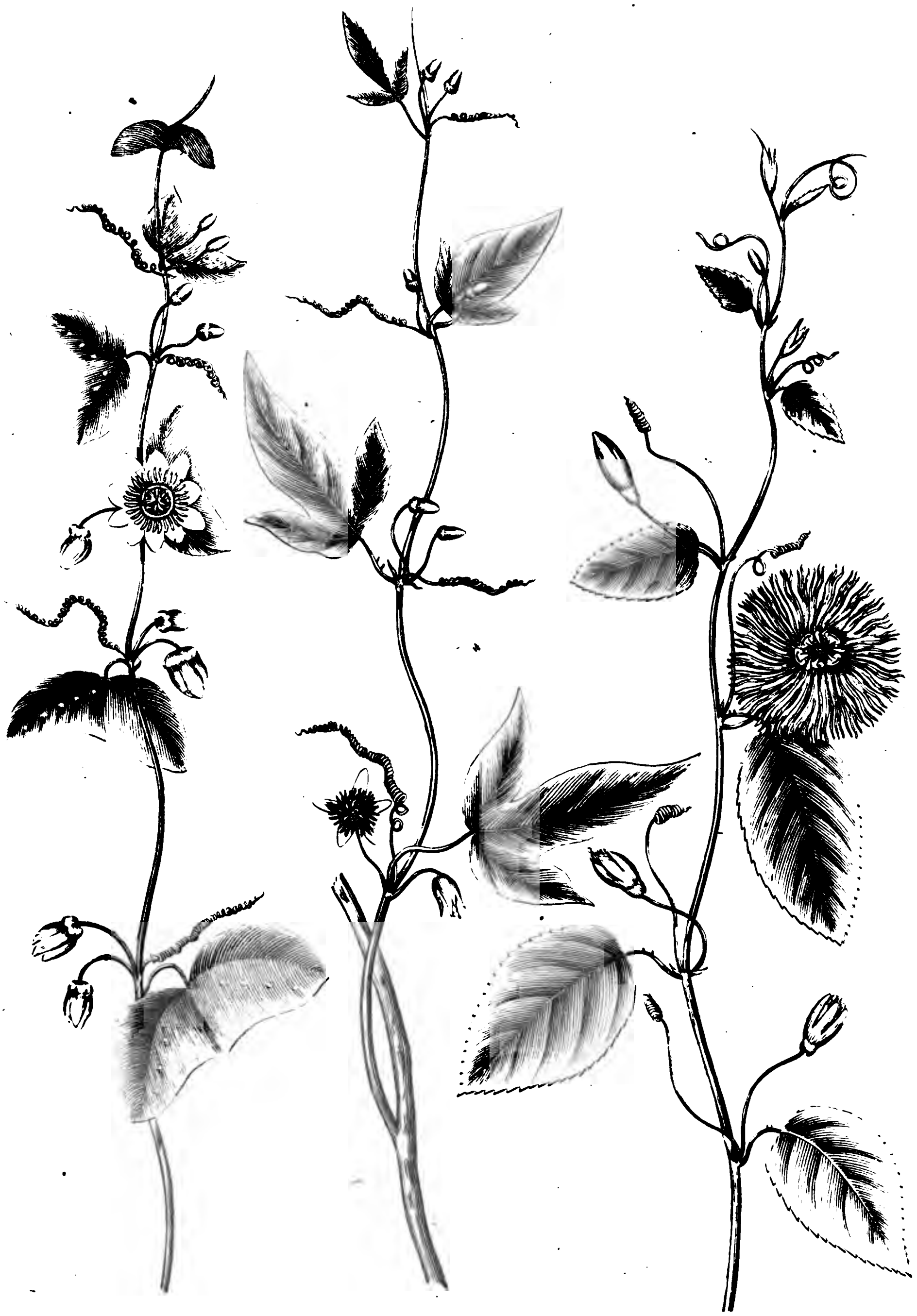
n del

Mazel

London. Published by Dr. Thornton. Augst. 1. 1810.

BIBLIOTHECA BODLEIANA

Three Species of Passion Flower.



1. Dotted. 2. Cork. 3. Serrated.

Henderson del. Eves sculp.

London. Published for Dr. Thornton Jan.y 1.st 1812.

BIBLIOTHECA BODLEIANA

APOLOGY.

SOME apology is certainly necessary, after any endeavour to Reform so celebrated and established a System, as the *Sexual System* of the illustrious LINNÆUS. Many alterations in this system have been attempted. The enlightened pupil of LINNÆUS, THUNBERG, abolished the Classes XX. *Gynandria,* XXI. *Monœcia,* XXII. *Diœcia,* and XXIII. *Polygamia.* GMELIN, Professor at Gottingen, to the alterations introduced by Thunberg, in publishing a new edition of Linnæus's Systema Naturæ, added the abolition of Class XII. *Icosandria;* and the no less celebrated Dr. SMITH, preserving the rest of the System entire, has abolished Order V. *Monogamia,* in Class IX. *Syngenesia,* and Class XIII. *Polygamia.* "To his Class *Polygamia,*" says Dr. Smith, "many students of tropical plants *justly* objected in his lifetime, and he, as well as his son, listened to their observations." Dr. WITHERING, in his Arrangement of British Plants, has followed the system of Gmelin. Professor MARTYN, speaking of the changes introduced by SCHREBER, in his new edition of Linnæus's Genera Plantarum, says, that his reduction of Class XX. *Gynandria,* "appears *reasonable,* yet the singularity of the Order *Diandria* surely demanded a separate place to itself." But when he comes to mention the incorporation by GMELIN of the Class *Icosandria* into the *Polyandria,* he declares this change to be "*abominable.*"

I am aware, that venturing to Reform in such a degree the *Sexual System,* as I have done, will bring upon me, with some, much severe reproach. I am conscious, indeed, as well as others, that the credit of the *Sexual System* of Linnæus, as an *invention*, surpasses all power of praise, and hence has found enthusiastic admirers; and with timid hands I have ventured to take to pieces the *superstructure* he raised, and build up from the *old materials*, which I have *carefully* and *religiously* preserved, a NEW EDIFICE, suited to modern improvement and convenience; hoping, however, that those who may, hereafter, publish the works of Linnæus, will edite the Sexual System as delivered by himself, and not bring forward, in the works said to be those of Linnæus, what he never either thought or wrote. For a full defence of the *Reformed Sexual System*, vide my "British Flora, being a New Illustration of the Genera of Plants, with dissections of each Genus," where this subject has been particularly considered and discussed*.

In a word, as by system is only meant a plan to *facilitate* the acquirement of the knowledge of plants, the more easy this is contrived to accomplish the proposed end, the better such a system will be accounted; and I have endeavoured so to contrive this, that I hope no longer any very great obstacles can arise in the way of the student, and that this will plead my excuse with a discerning and indulgent public for venturing to step out of the beaten path, to attempt the *reformation* of a System which has conferred immortal honour upon the inventor, and received the general plaudits and admiration of the learned throughout Europe. It appeared to me more advisable to *reform* the whole, than to make any *partial amendments;* either to adopt the system as delivered to us by Linnæus, or to have the present system, as erected out of materials of the old; a *system* which I hope may not moulder, like the other systems,* into the sand of which they were composed, but may resemble the youthful PHŒNIX arising from the ashes of its parent, and like a rock in the midst of the ocean, remain until "the wreck of matter and the crush of worlds."

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* In this work British Plants are classed after our *Reformed System*, and it is hoped the science of Botany is thereby more easily attained. This Book is principally designed as an introduction to that work.

It is certainly a great satisfaction for me to find, that although the learned and venerable *Professor* MARTYN, has long openly disapproved of the changes made in the Sexual System by the several Reformers, yet he writes to me—

Extract of a Letter to Dr. Thornton, from Professor Martyn.

"I by no means *disapprove* of *your new* attempt to render the Sexual System by the manner in which you have done it, an *easier medium* of attaining *a knowledge of Plants;* and have been long convinced in my own mind, that we strive in vain to unite a *natural* with an *artificial arrangement.* Upon *your plan,* I see *no impropriety* in bringing the ORCHIDEÆ into the *Second Class;* nor can I even *object* to your *altering,* as you have done, the separate classes of Linnæus, ICOSANDRIA and POLYANDRIA. Your *method* is ably considered throughout; for along with *you* I hold our great Master's System as *sacred*, and can never approve of those *greater alterations*" (he might have said *mutilations*) "which some of his pupils have made, so differently is to be estimated the conduct of persons engaged in the same object."

---

* Sixty-three Systems of Botany have appeared!

The Rev. Doctor MILNE, the learned author of "*A Botanical Dictionary*," writes to me thus—

Extract of a Letter to Dr Thornton, from the Rev. Dr. Milne.

"Your *Reformed Scheme* of the *Linnæan System*, has my *entire approbation*. It possesses all the admirable and elegant simplicity of that of RIVINUS, which has always been a great favourite with me, from the steady adherance of the author to the Principles of his Method, and is eminently adapted for *practice*. Your Remarks respecting the *Sexual System* are truly excellent;—your improvements on that System admirable. In a short time your's must be the prevailing System."

Doctor SHAW, of the British Museum, a gentleman not less eminent as a botanist, than a naturalist, declares, "that he believes, had LINNÆUS been alive, the *Reformed Sexual System* would be that which he himself would have instantly adopted."

Similar are the flattering opinions also of several other *distinguished botanists*, who have expressed their approval of the *Reformed Sexual System*. But with extreme diffidence I submit it to the judgment of the world.

HOW

TO EMPLOY

THE

REFORMED SEXUAL SYSTEM.

IT was our intention to have given "the *Genera of Plants*" on the large, useful, and magnificent scale, seen in several tables, taken from our "*Philosophy of Botany*," but owing to the *unchristian* spirit of one man, who has made the earth a wilderness, and for a time trampled down the *fine arts*, we have been obliged to conform to the circumstances he has produced, and we take this opportunity to inform the reader, that in our smaller work, entitled "the BRITISH FLORA, *being a new Illustration of the Genera of Plants, arranged after the Reformed Sexual System*,"* will be found all the genera distributed according to this improved System; a work which we are happy to say has met with the approbation of Professor MARTYN and Doctor SMITH, and which, though less splendid than our first intention, may be more *generally* useful.

A full apology for the innovation in the Sexual System of Linnæus may be seen in that work, with a defence of the same at the head of each class. The indulgent reader will, if offended, forgive the alteration made, when he recollects that it is most frequently but a tranposition of words, which would restore back this *Reformed System* of ours to the *original one* of the great founder. All botanists to whom our system has been hitherto shewn, have given it a decided preference, but it is introduced into the world with great humility.

EXPLANATION

OF THE

WORDS, CLASS, ORDER, AND GENUS.

Nisi vegetabilia in *Ordines* redigantur, et velut castrorum acies distribuantur in suas *Classes*, omnia fluctuari necesse est.—CÆSALPINUS.

THE number of Plants formed by the omnipotent and all-wise CREATOR are so vast, that without the aid of *method*, the mind of man would be overpowered by this profusion in the bounty of GOD, and he could only imperfectly treasure up in the storehouse of his brain the various beings of the vegetable race. But by the aid of *method* the difficulty arising from *number*, is in a great part obviated.

The student, when examining any plant, has to settle, which has been before explained,

1st, THE CLASS,
2dly, THE ORDER,
AND THEN
3dly, THE GENUS;

Which *three advances* in the SCIENCE OF BOTANY it is of the utmost importance to well understand.

Other sciences also have recourse to the aid of art, and as the ladder is contrived to mount up with facility to a great height, so we rise to the acquisition of science step by step.

For example, let us take *Astronomy*, and we shall find that the philosopher has invented two hemispheres, the northern and the southern, divided by the ecliptic circle; and the stars are situate in one or the other of these two hemispheres. He next has fancied figures in the heavens, which are called *Constellations*, which mean a cluster or assemblage of certain stars, and this greatly facilitates the acquirement of *Astronomy*. (*Vide* Plate 1, page 82.) So the *Botanist* has also his greater divisions, or *Classes:* his smaller divisions, or *Orders;* and thirdly, his subaltern divisions, his *Genera*, or assemblages of plants, all which agree in certain characters, and these possess one common appellation; for otherwise the memory must have been over-burthened with names.

It is the same as respects the appellation of persons, as the several *Family Names*, and some have instead of using the term *Genera of Plants*, called these assemblages by the title, "*The Families of Plants.*"

The most common observer has not failed to notice the different sorts or kinds of Roses constituting one *family;* as the common *Dog Rose* of the fields, and the garden *Moss Rose*, *&c.* (*Vide* Plates 2 and 3).

Thus the several species of *Geraniums* naturally arrange together, constituting one GENUS, all agreeing, if not in the character of the Corolla, in that of the

Germen, which resembles in each a *Crane's-bill;* hence its appellation. (*Vide* Plates 4, 5, 6, 7, 8.)

The different sorts of RANUNCULUS all agree in having a *Nectary* at the base of the unguis of the Petal; hence one common appellation, or generic name. (*Vide* Plate 9, 10.)

The *Pheasant's-eye*, ADONIS, is not a Ranunculus, only as wanting this *generic* character. (*Vide* Plate 11.)

Thus the several *Passion Flowers* all agree in a curious formed *Nectary*, and the same classical character; the stamina being five, beneath, and the nectaries in each species rayed. (*Vide* Plates 12, 13, 14, 15, 16, 17.) And each genus, or family, contains a greater or less number of species: thus we have two *Marvels of Peru* (MIRABILIS), varying in the length of the tube, &c. (*Vide* Plates 18, 19.)

THE

FACTITIOUS, ESSENTIAL, NATURAL, SECONDARY,

AND

SPECIFIC CHARACTERS.

THE reader will meet, in scientific Works, with five kinds of characters, which it is necessary, in order to become a Botanist, well to understand.

I. THE FACTITIOUS CHARACTER.
II. THE ESSENTIAL CHARACTER.
III. THE NATURAL CHARACTER.
IV. THE SECONDARY CHARACTER.
V. THE SPECIFIC CHARACTER.

1. The ***FACTITIOUS CHARACTER*** is employed in Tables to discriminate all the *genera* falling under each particular *Class* and *Order.* (*Vide* our BRITISH FLORA.)

2. The ***ESSENTIAL GENERIC CHARACTER*** comprehends all the distinctions requisite to discriminate any *genus* from all the other genera in

the world. As the multitude of *genera* is great, amounting probably, if we consider the *families of plants* distributed throughout the world, to considerably more than 2000, it became necessary to make *short* distinctions, characteristic of each tribe or *genus*, and to seize upon such peculiarities as are sufficiently striking, and run through each species of the same genus.

The beauty and perfection of these Essential Generic Characters consist in a clear concise discrimination of *each genus;* and, in order to contrast the better such *Essential Generic Characters,* these should be also included in *Tables,* or printed in a somewhat Tabular form.

These distinctions are frequently very perspicuous, attended with considerable beauty, although founded often upon some very minute consideration.

Thus, as was explained before, (p. 80.) the *Rose* is discriminated by its *urceolate pericarp,* crowned with a fringed calyx; the *Geranium,* by its *seed-vessel* having the resemblance of a *crane's bill;* the *Ranunculus* by its *scale* at the unguis of each petal of the corolla; the *Passion Flower* by a radiated nectary, and *Marvel of Peru* by its funnel-form corolla.

To this we might add the more striking *Essential Generic Character* of the *Monk's-hood,* having a pedicelled nectary, each filament bearing at the top the form of a *dolphin;* that of the *Columbine,* whose *nectary* resembles a *nest of doves;* that of the *Parnassia,* fringed, each hair terminating in a gland (*Vide* Plate 20); that of the *Snow-drop,* resembling three heart-shaped leaves, beautifully marked with green (*Vide* Plate 21); and the many linear petal-like nectary of the European *Trollius* (*Vide* Plate 22); and for more minute characters, the small teeth running through each species of the genus *Nettle*, by the side of the lower lip (*Vide* Plates 23, and 24); or the bifurcation of four filaments in the *Sea Kale* (*Vide* Plate 25).

Thus the small hairs on the filaments of the *Spiderwort*, and the crowned germen of the *Poppy*, form their generic character (*Vide* Plate facing Page 1). Other examples, sufficiently striking, will present themselves in almost every page of our "BRITISH FLORA *," to which this book is meant as an introduction.

3. The *NATURAL GENERIC CHARACTER* is a careful description of all the parts of the fructification, as the *Calyx*, *Corolla*, *Stamina*, *Pistilla*, *Pericarp*, and *Seed;* and this was what Linnæus particularly prided himself in, and it is here he has displayed his Lyncæan mode of investigation; and although such a particular description will not constantly apply to all the species, it still has very considerable merit, and deserves every attention.

4. The *SECONDARY GENERIC CHARACTERS* relate to those considerations which rarely indeed agree with all the species, and hence are called *Secondary;* as the *Stem*, *Leaves*, *Flowers*, and *Habitation;* yet these considerations certainly often greatly aid in the investigation of the *Genera* of plants.

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* We have introduced these *Factitious*, *Essential*, *Natural*, and *Secondary Characters* in our BRITISH FLORA, being an Illustration of the Genera and Species of British Plants."

5. The *SPECIFIC CHARACTER.* The preceding observations are sufficient for our knowledge thus far (viz. to know Class, Order, and Genus); but as the *Secondary Generic Characters* are founded on other considerations than the *flower*, as well as the *Specific Characters*, it is necessary that we should advance in our pursuit of Botany.

This is done in the Second Volume of this work, in which all the Terms of Botany are explained, and illustrated by proper examples.

The Utility of System explained.

ORDER or arrangement, is the life of every thing, and will be found to exist in all the rational concerns of men.

Thus, the *Year* is divided into *Months*, and these again into *Weeks*, and this last into *Days*.

Thus, an *Army* is composed of *Regiments*, these are divided into *Companies*, and this last is subdivided into still smaller divisions.

But the comparisons which we would prefer to all others, as being the most familiar and obvious, is that Division which obtains in *Geography*.

The *World* is divided into four *Continents*,—*Europe*, *Asia*, *Africa*, and *America*.—If we take *Europe* for example, we shall find this is also subdivided into *Kingdoms*, as *Great-Britain*, *France*, *Italy*, *Germany*, &c.; and if *Great Britain*, we shall find that this is composed of *England*, *Wales*, *Scotland*, and *Ireland*,—and any of these parts again into *Counties* or *Shires*, and these into *Parishes*, and *this last* into *Towns* or *Villages*,—and *these* have likewise their *Subdivisions*.

Suppose now, a letter be directed to DOCTOR THORNTON, No. 1, *Hinde-Street*, *Manchester-Square*, *London*, sent from America.

It is brought at once to *London*, instead of *Dublin*, *Edinburgh*, *Paris*, or *Berlin*. Being arrived in *London*, it is then given to the *Postman* whose department is *Manchester-Square*, who readily brings it to me in Hinde-Street.

Thus it is, that, having any Scientific Work, suppose our BRITISH FLORA, in which plants are arranged in their *Classes*, *Orders*, *Genera*, and *Species*, the names of unknown plants may be as readily found out by one acquainted with *Botanical Language*, as a *Postman* brings me a letter sent from abroad; but to accomplish this, we must have first well acquired, 1. The CLASSES, 2. ORDERS, 3. The GENERIC, and, 4. SPECIFIC CHARACTERS of Plants, whereby this *desideratum* is accomplished.

For instance, suppose a person instructed in Botany were to meet with the ACONITUM, *Monk's-hood* (Plate 59), he would find it, by dissection, of Class XIII. Polyandria, Order III. Trigynia, and of this particular CLASS and ORDER, there are only *two* plants in the whole world, viz. the *Monk's-hood* and *Larkspur*, and by comparing the *genuine characters* of the two, the former having a *pedicelled Nectary*, which the other has not, he would have at once discovered the *scientific name* of the plant.

Again, suppose he were to examine a *Rose* (Rosa), he would first discover its Class and Order; for instance, it has *many stamina;* he would then look at the *insertion*, and would find these inserted into the *Calyx*, hence he would discover the *Rose* to be of the Class XII. Icosandria, and having *many pistilla*, of the Order V. Polygynia, of which Order there are only *nine Genera* in the world; looking at the *Generic Character*, he would find two Genera only with the *Calyx five-cleft*, in the whole world, the Rubus, *Bramble*, and Rosa, the *Rose;* these are soon discriminated by the *Calyx* of the *Rose* being urn-shaped, which the other is not. Having discovered Class, Order, and Genus, we will suppose him to consult the *Specific Characters* of plants, and he would find that there are in the *British Flora* two distinctions of Roses, 1. those with the Fruit, *globular;* 2. Fruit *ovate;* and there were three species of Roses, with the Fruit ovate, the Rosa tomentosa, rubiginosa, and canina.

			SPECIES.
Fruit	hispid	leaves tomentous on both sides. . . .	1. Tomentosa.
		—— clothed with rusty-coloured glands beneath . .	2. Rubiginosa.
	smooth, leaves also smooth .		3. Canina.

At once the student will have found his plant to be the Rosa canina, or *Dog Rose*, a British Plant.

We will suppose the student to meet with a Geranium;

he will have no difficulty in assigning this to MONADELPHIA, the filaments being *united at the base into one body*, and of Order DECANDRIA, *ten stamens*, he would then find these divided into sections.

Let us take the British Plants, the Horse-shoe Geranium, being so well characterised.

BIBLIOTHECA BODLEIANA

FLOWERS. SPECIES.
10-Stamens alternating with the leaves — leaves triangular-shaped 1. Pyrenaicum.
——round 2. Molle.
not alternating . . 3. Robertianum.
5-Stamens, these are placed by some under a new Genus. Erodium. 4. Cicutarium.

The PASSION-FLOWERS arrange in the same beautiful manner—

SPECIES.
Leaves, simple — round, Nectary blue, 1. Cærulea.
square — Nectary open, 2. Quadrangularis.
——— 1 pup 3. Alata.
incised — Many incisions . . . 4. Serrata.
teeth as in a saw
2-cleft only . . . . 5. Punctata.
with dots in the leaf
3-cleft, stem cork . . 6. Saberosa.

And so on, which will be better understood when the student has become master of all the terms of Botany, contained in our Second Volume.

END OF VOL. I.